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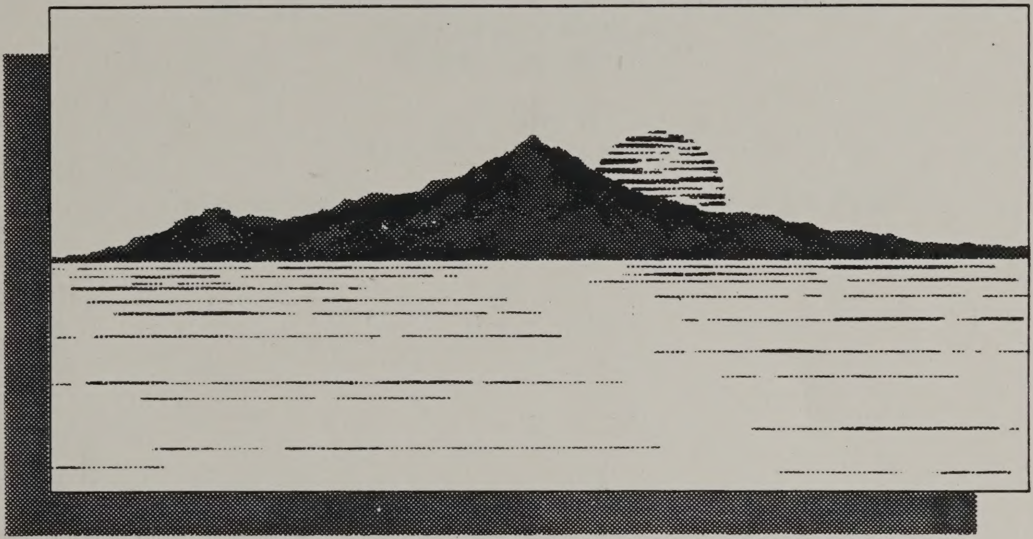

# MEAD/McCULLOUGH–VICTORVILLE/ADELANTO

## TRANSMISSION PROJECT

## TECHNICAL REPORT

### VOLUME IV
### CULTURAL ENVIRONMENT

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# MEAD/McCULLOUGH-VICTORVILLE/ADELANTO TRANSMISSION PROJECT TECHNICAL REPORT

## VOLUME IV
## CULTURAL RESOURCES

Research Performed Under BLM ARPA Permit #CA-16061

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Prepared for:

Los Angeles Department
of Water and Power
U.S. Department of the Interior
Bureau of Land Management

June 1985

# CHAPTER 9
# ARCHAEOLOGY

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# CHAPTER 9
# ARCHAEOLOGY

## INTRODUCTION

This report describes the archaeological studies conducted in support of the environmental impact statement for the Mead/McCullough-Victorville/Adelanto 500kV transmission line, which is being proposed by the Los Angeles Department of Water and Power. The proposed transmission line would traverse the northern and western Mojave Desert between McCullough, Nevada near Lake Mead and the vicinity of Victorville, California. The archaeological study area consisted of a series of mile-wide corridors within which the transmission line could be sited (Figure 3-8, Map Volume). The major goal of the archaeological research was to predict impacts of the routing alternatives and to provide input into the selection of a preferred route. In order to predict impacts, a sensitivity model has been developed (see below).

The study area has been subdivided into a series of "links," which can be combined into all possible routing alternatives. Potential impacts of each link then form the basis for assessing impacts of the alternatives. Links 0 through 43 were assessed in the initial study and provide the baseline data upon which the sensitivity model was developed in the main text of this report. Subsequently, Links 44 and 45 were added to the study area. These links are discussed in Appendix A.

The Mead/McCullough-Victorville/Adelanto study area has received considerable archaeological attention in recent years, both for the assessment of impacts of proposed transmission corridors and for the establishment of the California Desert Conservation Area (CDCA) Plan (Bureau of Land Management (BLM) 1980). Some of the alternative corridors included in the present report are essentially the same as:

1. The Allen-Warner Project's Baker and Silurian routes, surveyed at the 20 to 25 percent level by the University of California at Riverside (Barker et al. 1979);
2. The Ivanpah Project's preferred route, intensively surveyed by the University of California at Riverside (Hall et al. 1981);
3. The Victorville-McCullough lines 1 and 2, intensively surveyed by Greenwood and Associates (Greenwood and McIntyre 1979); and
4. The Intermountain Power Project (IPP)-Adelanto Bipole I line, intensively surveyed by Applied Conservation Technology (Macko et al. 1982; Tucker 1982).

These data are supplemented by archaeological overviews and sample inventories conducted by the BLM. Particularly relevant to the present project are the overviews of the western Mojave Desert (Stickel and Weinman-Roberts

1980) and the northeastern Mojave (Warren et al. 1980) and sample surveys of the Olwshead/Amargosa and Mojave Basin planning units (Brooks et al. 1979), the northeastern Mojave (Coombs 1979a) and western Mojave (Coombs 1979b). Because of the large number of previous studies, it was decided early in the scoping process that the cultural resources studies for the present environmental assessment should rely as much as possible on existing information. Therefore, much of the overview material on the natural and cultural setting commonly found in cultural resource assessments is summarized only briefly below. Much fuller background can be found in the cited references.

## STUDY AREA OVERVIEW

### Natural Environment

Prehistoric human occupation of the Mojave Desert was conditioned to a large extent by environmental factors. The following discussion of the natural environment is organized around key resources available to prehistoric groups. Those resources were necessary to subsistence and were thus prime determinants of settlement patterns.

Aridity is perhaps the most salient aspect of the modern environment, and water was a key resource to prehistoric groups. It should be borne in mind, however, that climate is one of the least constant aspects of the natural environment. At the end of the Pleistocene (10,000 before present) the climate was wetter and cooler than at present and supported a more mesic plant community (King 1976; LaMarche 1974; Van Devender 1977). Subsequent oscillations in available moisture have been proposed.

There are four natural types of water sources in the study area today: springs, the Mojave River, playa lakes, and ephemeral streams. Springs and the Mojave River can be considered permanent (year round) water sources, while playa lakes and ephemeral streams serve as seasonal sources. During wetter climatic cycles, these seasonal sources may have been more reliable and long-lasting than at present. At present, most playa lakes fill only during very high intensity rainstorms or particularly wet winters. Ephemeral streams run on the surface for only a few hours (or at most a few days), following rainstorms.

Rainfall is highly seasonal with 75 percent or more falling in the late fall to early spring months. Summer rain occurs primarily as brief, localized, often torrential thunderstorms (Weide 1980). Some winter precipitation falls as snow, but there is no snow pack to provide continuous meltwater during the dry months. Evapotranspiration greatly exceeds precipitation, creating a negative water balance, and sandy/gravelly soils permit rapid dissipation of surface flow.

At present, the Mojave Desert supports primarily a creosote bush scrub plant community. This community provides a few plant resources utilized by Native Americans, but generally these do not occur in dense concentrations which may have served as foci of prehistoric activities. Other plant communities with greater economic significance are the Joshua tree woodland, juniper woodland and riparian communities. Prehistoric site densities in or near these communities would be expected to be higher than in the creosote scrub. A final plant community, the saltbush community, is currently found at playa margins and consists of salt tolerant species of little economic importance to Indian populations. Under earlier climatic regimes, however, it is thought the lakeshores may have supported relatively rich floral and faunal communities. Weide (1976), however, has questioned this.

The plant communities of the study area support a variety of small game known to have been taken by Native Americans, including cottontail, jackrabbit, and desert tortoise. Larger game animals include muledeer, pronghorn antelope and desert bighorn sheep. When playas fill, it has been noted that migratory water fowl soon appear (Weide 1976).

As mentioned previously, the climate of the study area is thought to have changed significantly during the period of prehistoric human occupation. Consequent changes in the distribution of plant and animal species would have resulted, but insufficient study has been done to identify such changes with precision. Evidence for climate change comes from tree ring studies in the White Mountains (LaMarche 1974; LaMarche et al. 1974) and more locally from the sedimentology of lake beds (Warren and Ore 1971), palynology and the study of fossilized packrat middens (King 1976; Van Devender 1977). These results have recently been synthesized for the study area by Macko et al. (1982:35) as follows:

| Years Before Present | Climate |
|---|---|
| 24,000 to 10,000 | Cool and moist |
| 10,000 to 5,500 | Dry and warm |
| 5,500 to 3,200 | Cooler and moister |
| 3,200 to 1,600 | Dry, evidence for both cooler and warmer |
| 1,600 to present | Cooler, with some warm periods |

More work needs to be done, however, to substantiate this reconstruction.

The study area is geologically complex. Of particular archaeological importance are sources of lithic materials utilized in the manufacture of tools. Preference was given to fine-grained cryptocrystalline silicates (chert, chalcedony, jasper), basalt and various metavolcanics. Such deposits are found in the study area as flows and outcrops and in desert pavements. Cryptocrystalline silicates can be found in marine sedimentary rocks which may be the source of cobbles and boulders contained in many desert pavements (Macko et al. 1982:24), but they are also known to occur in deposits derived from the erosion of tertiary volcanics and Plio-Pleistocene non-marine deposits (Robarchek et al. 1984:152). The contact zone between volcanic flows and marine sedimentary rocks appears to produce a variety of knappable materials.

It should be noted in the environmental setting that the desert is geomorphologically active (Weide 1980). Wind erosion deflates some archaeological sites and buries others in dune deposits. Similarly, fluvial action can destroy archaeological sites, as on active fan deposits, and bury others beneath alluvium. Areas of active erosion have low archaeological potential, but areas of deposition may contain subsurface sites with little or no surface evidence.

## Cultural Environment

Scientific study of the archaeology of the California deserts was initiated by Malcolm Rodgers (1939) and Elizabeth and William Campbell (1935; 1937) in the late 1920s and early 1930s. Basing their analyses primarily on surface materials, these early investigators were able to distinguish most of the archaeological complexes that serve today as the chronological framework for Mojave desert archaeology (Wirth Associates et al. 1981:4). Improvements in chronometric dating have led to revisions of the absolute dates assigned to these complexes, and revised terminological systems have been proposed (Lanning 1963; Wallace 1962; Warren and Crabtree 1972). Table 9-1 provides a cross-tabulation of the various chronological frameworks. In the discussion that follows, we adhere to the chronology proposed by Warren (Warren et al. 1980; Wirth Associates et al. 1981) and in use for the Fort Irwin Archaeological Project.

The Pleistocene Period (pre-10,000 BC) can be called a tentative cultural period in that artifacts attributed to this period in the desert either lack firm dating or have not been demonstrated to be man-made (Wirth Associates et al. 1981:6). The Manix Lake lithic industry, while clearly cultural, lacks firm dating. Proponents claim great antiquity on typological grounds, while critics argue that the industry simply represents the results of manufacturing activities from later periods. Early dates from the Calico Early Man Site near the study area have not been proven to be associated with real artifacts to the general satisfaction of archaeologists.

The earliest generally accepted cultural phase is the Lake Mojave Period, dated between 10,000 and 5000 BC (Wirth Associates et al. 1981:7). Artifact assemblages are characterized by long-stemmed and occasional fluted projectile points, flaked-stone crescents, specialized scrapers, a variety of flake tools and heavy core tools as choppers. Millingstones are absent. Major sites are often found in association with high lake stands. For instance, Lake Mojave period sites have been found on the shore of Silver Lake in the study area, and Silver Lake has lent its name to a distinctive projectile point type found there.

Lake Mojave Period sites can be seen as part of a larger pattern of early lake shore sites found throughout the Great Basin, Columbia Plateau and California (Bedwell 1970). It is often argued that the hunting of large game and/or the exploitation of lacustrine resources played a major role in the subsistence systems of these early peoples, but few floral and faunal assemblages have been recovered to verify this argument. The absence of millingstones suggests that the exploitation of hard seeds, so important in later economies, had not yet developed.

Interpretations of the Pinto Period (5000-2000 BC) in the Mojave vary widely. Warren (1980) has argued that the Pinto Period represents a continuous development out of the Lake Mojave period. Others, including Wallace (1962), suggest that there was a cultural hiatus in many desert areas between 5000 and 3000 BC, induced by a climate more arid than today's. Pinto sites are seen as a new adaptation moving into the desert during wetter climatic conditions referred to as the Little Pluvial (ca. 3000 BC through AD 1). This argument is supported by the dates for Great Basin Pinto series points. However, proponents of the long chronology argue that the crudely made Pinto points from the California desert are typologically distinct and possibly older than "Pinto" points from the Great Basin. A good series of radiocarbon dates for Pinto sites in California is needed to resolve this argument.

In the Mojave, the Pinto assemblage is characterized by Pinto series points, keeled scrapers, flake tools, choppers, flat grinding stones, and manos. Warren has argued that this assemblage suggests a generalized hunting and gathering economy (Wirth Associates et al. 1981:14). Pinto sites are often small and associated with ephemeral lakes and stream beds.

The subsequent Gypsum Period (2000 BC-AD 500) is identified by the presence of Humboldt Concave-base, Gypsum Cave or Elko Corner-notched points (Wirth Associates et al. 1981:15). Other characteristic artifacts include rectangular based knives, flake scrapers, t-shaped drills, manos and metates. Mortars and pestles were also introduced, as were Olivella and Haliotis shell beads. Split-twig figurines, thought to be associated with hunting ritual, have been found at Newberry Cave near the study area and dated to early in this period. Numerous zoomorphic petroglyphs are thought to date to the Gypsum Period as well. Warren has argued that this was a time of dynamic cultural change within the desert environment. Progress was made toward effective adaptation to aridity; new technologies were introduced to permit the processing of a variety of seed plants; hunting rituals were expanded; economic ties with other regions were expanded; and, toward the end of the period, the bow and arrow was introduced.

The Saratoga Springs Period (AD 500-1200) is seen as a period of strong regional developments in the Mojave (Wirth Associates et al. 1981:21). Warren identifies three areas of regional development. The eastern Mojave came under strong Anasazi influence, as evidenced by the presence at many sites of distinctive pottery types. The turquoise mines near Halloran Springs are thought to be the major impetus for contact with the Anasazi, but the degree to which the Anasazi actually occupied the desert is still an open question (Wirth Associates et al. 1981:22). Northwestern Mojave sites contain similar assemblages (Rose Springs and Eastgate series points, manos and metates, incised stones and slate pendants) as eastern Mojave sites, but lack Anasazi ceramics. Developments in the southern Mojave on the other hand are more closely allied with those of the lower Colorado River. The early (non-ceramic) portion of the sequence in the southern Mojave is poorly known. The Oro Grande site near Barstow is dated around AD 1000 (Rector et al. 1979:137) but lacks pottery altogether, and Warren suggests an upwardly sloping terminal date for the "non-ceramic" period, representing the diffusion of Lower

Colorado River pottery westward into the Mojave (Wirth Associates et al. 1981:25). It is not clear whether this diffusion represents trade, the use of the Mojave by peoples from the Lower Colorado River culture area, or the borrowing of ceramic technology. The Oro Grande site is also notable for its abundance of Cottonwood series points and absence of Desert Side-notched points (Rector et al. 1979:137).

The Protohistoric Period (AD 1200-Historic) saw the establishment of the cultural patterns reported by the first Europeans to enter the area. Characteristic artifacts of this period in the north are Desert Side-notched points and Owens Valley Brownware ceramics. In the south and along the Mojave River, buff and brownwares indicate continued influence from the Lower Colorado River. Cottonwood Triangular points continue to be used. In the eastern Mojave the Anasazi influence ends at around AD 1150.

Trade with the peoples of Lower Colorado and the California coast greatly expanded during the Protohistoric Period. The Mojave River apparently served as a trade corridor during this time. Warren (Wirth Associates et al. 1981:26) has argued that:

> The trade along the Mojave must also have provided the middlemen of the region with opportunites to obtain relatively great amounts of wealth for a desert people. The large villages of the upper Mojave River (Smith 1963), the large quantity of beads recovered, and the general elaboration of the artifact assemblage suggest, this was indeed the case. In the late periods of Mojave Desert prehistory, trade must be considered another means of adaptation to the desert environment by which wealth and status could be obtained.

Sites of the Protohistoric Period include habitation sites with well developed midden located near reliable water sources, temporary camps representing seasonal forays into outlying areas, and a variety of resource procurement and processing stations.

## STUDY PERSONNEL

Participants in the archaeological study were:

James H. Cleland, Principal Investigator
Ph.D., Anthropology, University of Virginia, Charlottesville, 1977
MA, Anthropology, University of Virginia, Charlottesville, 1974
BA, Anthropology, University of Michigan, Ann Arbor, 1969

Rebecca McCorkle Apple, Crew Chief
BA, Anthropology, San Diego State University, 1978

Mary J. Donovan, Crew Chief
BA, Anthropology, San Diego State University, 1978

Weldon Johnson
Native American Observer, Colorado River Indian Tribes

Curtiss Martin
Native American Observer, Colorado River Indian Tribes

Norman Hancock
AA, History, Palomar Community College, 1953
Post AA study, Anthropology, Palomar Community College

Jay Hatley
Anthropology classes, Mesa Community College

James Moriarty, IV
MA, History, University of San Diego, in progress
BA, History/Anthropology, University of San Diego, 1980

Jan Seymour
MA, Anthropology, Columbia University, 1984
BA, Anthropology, University of California, Santa Cruz, 1982

Carrie Sparrevohn
BS, Anthropology, University of California, Riverside, 1984

## INVENTORY METHODS

### Study Components

The archaeological inventory for the McCullough-Victorville environmental assessment consisted of three study components:

1. Record search/literature review.
2. Sample Survey.
3. Sensitivity Analysis.

A complete record search, covering mile-wide corridors centered on the alternative links, was conducted at the archaeological clearinghouses sanctioned by the State Historic Preservation Officers of California and Nevada. The California portion of the study area is covered by the Regional Office of the California Archaeological Inventory at the San Bernardino County Museum, while the Nevada records are curated at the Museum of Natural History at the University of Nevada, Las Vegas. The National Register of Historic Places and archaeological areas identified in the CDCA Plan were also reviewed.

The record search was supplemented by a review of the archaeological literature for the study area. As previous literature reviews for the study area have been published, special emphasis was placed on those sources which would help predict archaeological sensitivity in unsurveyed portions of the alternative links.

Based on the record search, it was determined that previous surveys had resulted in good coverage of some links and little or no coverage of others (see Table 9-2). Many of the new links in the Barstow-Victorville area lacked coverage altogether, as did Links 0, 7, 10 and 11 between Barstow and McCullough. In order to provide data on these areas, a sampling strategy was developed, and field inventories of a total of 23 miles of alternatives was conducted. The sampling strategy and field methods are discussed below.

The third study component was a sensitivity analysis. At this stage in planning, access roads and tower locations were unknown. Moreover, unrecorded sites could have existed in areas that had not been surveyed. Therefore, assessing impacts on specific archaeological sites, which might be avoidable in later planning, was not possible. Rather, a predictive and comparative method of assessing impacts had to be utilized. A major consideration in such an assessment was "archaeological sensitivity," by which we mean the level of known or predicted archaeological values in an area. Archaeological site density and archaeological significance (as defined by the National Register criteria of eligibility) were both considered in determining sensitivity. Sensitivity levels utilized herein were defined as follows:

Maximum - Properties listed on the National Register; BLM Areas of Critical Environmental Concern (ACECs) identified as such on archaeological grounds.

Major - Areas of known or predicted high site density or high archaeological significance.

Moderate - Areas of known or predicted moderate site density or moderate archaeological significance.

Minimum - Areas of known or predicted low site density or low archaeological significance.

It should be pointed out that areas of low sensitivity may occasionally contain highly significant sites. More discussion of the methods by which these sensitivity levels were assigned is presented below.

## Data Collection

### Secondary Sources

Numerous secondary data sources are available for the study area and most were reviewed in the Introduction. Those most pertinent to the preparation of this report are listed below by author and date. An asterisk preceding the citation indicates archaeological studies conducted for previous transmission projects in the study area.

| | |
|---|---|
| *Barker and Schlanger | 1974 |
| *Baker, et al. | 1979 |
| Brooks, et al. | 1979 |
| Bureau of Land Management | 1980 |
| Coombs | 1979a, 1979b |
| *Fowler, et al. | 1978 |
| *Greenwood and McIntyre | 1979 |
| *Hall, et al. | 1981 |
| *Macko, et al. | 1982 |
| Rector | 1979 |
| Rogers | 1939 |
| Steward | 1938 |
| Stickel and Weinman-Roberts | 1980 |
| *Tucker | 1982 |
| Wallace | 1962 |
| Warren, et al. | 1980 |
| Warren and Crabtree | 1972 |
| Weide | 1980, 1976 |
| Wirth Associates, et al. | 1981 |

## Fieldwork

### Sampling Strategy

The initial sampling strategy proposed was to bring the survey of each link to the 20 percent level where necessary. While this figure was based on comparability with other projects conducted in the study area (e.g., Barker et al. 1979), there is no absolute rule for the amount of survey necessary for reliable predictions. Mueller (1974) has presented evidence that up to 40 percent or more is necessary for specific predictions, while Plog (Plog and Wood 1977) has argued that much smaller sample fractions (in the order of 1-2 percent) can be effective in cultural resource management. The BLM conducted inventories at this lower figure for establishment of the CDCA Plan (BLM 1980:12).

Since the intent of the sample survey was to provide ground-truthing for a predictive sensitivity assessment of each link, it was decided to use the links as sampling strata. This would ensure that coverage was geographically dispersed, an important factor to consider given the large size of the study area.

A sampling unit (transect) measuring 1 mile x 1/8 mile (1600m x 200m) was chosen. This unit corresponds with the unit size utilized in the majority of the BLM inventories for the CDCA Plan (BLM 1980:12). For siting lineal projects where access is poor, this unit represents an efficient field strategy. The transects paralleled the link, centered on the link centerline.

An initial sample was drawn utilizing a random number table (Blalock 1972:Table B). Randomizing was done primarily to eliminate the possibility of researcher bias in the selection process. It was not anticipated that tests of statistical significance based on random sampling assumptions would be particularly useful, in view of the fact that much of the study area has received intensive survey.

The initial draw resulted in the selection of 44 transects, nearly twice what had been originally anticipated. On close examination of previous surveys, it was determined that a lesser sampling fraction would be sufficient. A total of 287.5 miles of the proposed links had been previously surveyed (see Table 9-2). This represents slightly over 50 percent of the total and provides a good basis for sensitivity analysis. It was decided to focus the present survey on those areas where additional information could make a real difference. Two methods were used to pare down the sample. First, 14 transects were eliminated because of problems of gaining permission to survey. Next, the sampling strata were subdivided by environmental zone. The following zones were defined on the basis of topography and hydrology:

| | |
|---|---|
| Valley - | flat to gently sloping valley floors, alluvial fans and lower pediment. |
| Mountains - | steep rocky slopes and small upland valleys. |
| Valley/Mountain Contact - | a 1 km wide band centered on the foot of steep slopes. |
| Spring - | within 1 km of a known spring, regardless of topography. |
| Mojave River - | within 2 km of the Mojave River, regardless of topography. |
| Playa Margin - | a 0.5 km wide band around dry lakes. |

It was found, not surprisingly, that most transects fell within the valley substratum, while very few were found in the other substrata. In order to preserve environmental variability in the sample, four additional transects were deleted from the valley substratum by reference to the random number table, leaving a total of 25 to be surveyed. Two of these were ultimately deleted for logistical reasons.

## Field Methods

The field portion of the cultural resources survey for the initial phase of the Mead/McCullough-Victorville/Adelanto 500kV Transmission Line was conducted December 10 through December 15, 1984. The survey covered 23 randomly selected transects along the proposed routes. Each sample transect was one mile long and one-eighth mile wide.

Two crews of four surveyors each participated in the survey. Each transect was surveyed by one crew in two sweeps, with crew members walking parallel lines 25 meters apart. When a site or isolate was encountered an intensive check was made of the area. The minimal definition of a site was five or more artifacts in a 25 square meter area. This conforms with the BLM definition. Isolated features, such as rock rings, were recorded as sites. Site forms were compiled for each site, which included a sketch map and site photographs. Isolated finds were briefly described then photographed and their location mapped.

**The only deviation from these described methods was the recordation of site LK 41-Tr10-A. The artifact density did not meet the level necessary for the definition of a site; however, the site's location on an alluvial area could involve buried materials. Additionally, three lithic material types were present, perhaps indicating more than an isolated event.**

## Sensitivity Analysis

Because intensive survey had been conducted on some links and not others, two different approaches to the sensitivity analysis were necessary. Where intensive survey had been conducted, known site distribution and significance were utilized in determining sensitivity levels. Elsewhere, environmental factors considered predictive of prehistoric settlement patterns were utilized. There is a relatively extensive literature available for the study area regarding this type of relationship.

### Previous Sensitivity Analyses

Archaeologists working in the vicinity of the project area in the 1970s found that most of the previously recorded sites were not located through systematic archaeological survey, but instead had been reported by interested parties over the years. Greenwood and McIntyre (1979:44-45) predicted, based on previously recorded sites, that the prehistoric cultural resources expected along the Victorville-McCullough 1 and 2 lines would be either lithic processing areas or temporary "unifunctional activity" areas. While the survey results (45 percent of the sites recorded were camps and 22 percent were quarries) supported the predicted site types, no real associations with environmental settings were identified. The majority of the cultural resources were found to occur in the alluvial areas, a finding which may closely relate to the proportion of the line which traverses alluvium (Greenwood and McIntyre 1979:26).

Greenwood and McIntyre (1979:59) appear to agree with Fowler et al. (1978:26) that landform types indicate only in the most general way where archaeological sites are likely to be located. The suggestion is made that "to evaluate the true significance of site location, a test utilizing landform in relation to hydrological and vegetative variables would be necessary" (Greenwood and McIntyre 1979:59).

Barker et al. (1979) argue that there is a substantial amount of information on where sites are more and less likely to be found with respect to landform and vegetational association. Using previously recorded site data and various studies (Greenwood and McIntyre 1979; Fowler et al. 1978; Barker and Schlanger 1974; Brooks et al. 1979), Barker et al. (1979:I-4) venture "that it was possible to predict from the outset that certain landforms and their attendant vegetational associations would be more likely to contain archaeological sites than others." The following are those settings predicted to contain significant numbers of archaeological sites:

1. Bases and lower slopes of mountains.
2. High, pinyon--or agave--clad mountains.
3. Springs and streams.
4. Open sandy plains.
5. Alluvial deposits containing siliceous rocks.
6. Playa lake margins.

Likewise, certain settings are known for their paucity of sites:

1. Active alluvial slopes.
2. Open broad valley bottoms lacking water.

The stratified random sampling by geomorphic variables conducted for the Allen-Warner Valley Energy System, Western Transmission Line Corridors, tended to confirm the above predictions (Barker et al. 1979:I-5).

Looking beyond this general level of association Barker et al. (1979:II-9-II-17) address two ethnographic models of prehistoric subsistence and settlement patterns. Based on Steward (1938) one of the ethnographic models is applicable for the area where pinyon is distributed (mountains). The second subsistence-settlement model based on available ethnobotanical information is postulated for the Mojave River area. With the belief that the most important subsistence-settlement systems are subsumed within these two models Barker et al. (1979) predicted that higher site density would be expected in the mountain areas than in the valley (and river) areas. The valley/mountain distinction was seen as summarizing the possible stratification variables in that a focus on relief would also result in environmental segregation of other important variables (Barker et al. 1979:III-6). The survey produced "mixed results" with only one of the five lines (Baker, Interstate 15 corridor) confirming the earlier expectations (Barker et al. 1979:IV-8). The sample data were used to predict site densities for the various corridors. These range from one site per each 11.03 miles of the Cadiz Line to one site per 3.36 miles of the Silurian Line (Barker et al. 1979:I-5).

In order to obtain site density estimates Coombs (1979a:81-82) utilized a model developed by Rogge and Fuller (1979) that assumes a linear relationship between the sample and the overall population, without taking into account uncertainty due to sampling error. Coombs' (1979a) research involved survey of two stages of unit or transect selection, including stratified random sampling, cross-stratified by three environmental variables (landform, vegetation and water) as well as non-randomly selected blocks. Based on the results of this work Coombs (1979a:85) ranked resource areas by sensitivity--with valley regions ranked higher than mountain regions. Within these two landform categories mesquite and spring locations were ranked higher than other areas. Actual site density estimates were presented with 0.73 site per square mile for the mountain stratum and 2.49 for the valley. Within mesquite and spring areas the estimates are 6.73 and 3.91, respectively.

The valley-contour hypothesis put forth by Coombs (1979a:92-97) looks at site location in an idealized cross-section of a desert valley. The test of this hypothesis consists of a series of related analyses of variance (Coombs 1979a:92), which Coombs reports as indicating that most sites tend to cluster along the edge of the valley floor and upper pediment (seemingly reflecting the relatively low amounts of unique resources between these zones.)

Coombs (1979b) work in the western Mojave continued the research conducted in the northeastern Mojave; however, this later work is aimed almost exclusively toward the generation of relative estimates, linking postulated differences in site numbers or densities with environmental or locational differences. Two stratifying variables, landform and water, were identified by section, producing five mutually exclusive sampling domains. Stratified random transects (block) were then surveyed in the following domains:

1. Mojave River valley.
2. Playa valleys.
3. Spring areas.
4. Other valleys.
5. Mountains.

From his research Coombs (1979b:53) projects the following distribution for prehistoric sites:

|  | Number of Units | Number of Sites | Sites Per Sample Unit | Estimated Number of Sites per square mile |
|---|---|---|---|---|
| Playa Valleys |  |  |  |  |
| Zone 1 | 11 | 11 | 1.0 | 8.0 |
| Zone 2 | 9 | 0 | 0 | 0 |
| Zone 3 | 12 | 4 | 0.33 | 2.7 |
| Mojave River Valley |  |  |  |  |
| Zone 1 | 9 | 12 | 1.33 | 10.7 |
| Zone 2 | 9 | 25 | 2.78 | 22.2 |
| Zone 3 | 9 | 13 | 1.44 | 11.6 |

|  | Number of Units | Number of Sites | Sites Per Sample Unit | Estimated Number of Sites per square mile |
|---|---|---|---|---|
| Other Valleys |  |  |  |  |
| Zone 1 | 12 | 4 | 0.33 | 2.7 |
| Zone 2 | 11 | 27 | 2.45 | 19.6 |
| Zone 3 | 11 | 26 | 2.36 | 18.6 |
| Springs | 7 | 6 | 0.86 | 6.9 |
| Mountains | 6 | 2 | 0.33 | 2.7 |

Zone refers to the unit's proximity to the valley floor. Zone 1 in the table refers to those sample units located nearest the valley floor while Zones 2 and 3 refer to those located intermediate and furthest from the valley floor, respectively. These results appear to support the Valley-Contour hypothesis except in the Mojave River Valley. Coombs (1979b:65-67) feels the most reasonable explanation of these results is that prehistoric site densities are a simple inverse function of the distance to the river. He is careful to note that his "results do not imply site frequencies are highest near the river. Rather, and more precisely, they indicate that the likelihood of finding some prehistoric sites is greatest in the immediate vicinity of the river" (Coombs 1979b:67). Three generalizations regarding prehistoric settlement along the Mojave River present themselves (Coombs 1979b:73):

a. The likelihood of finding sites tends to decline as the distance to the river increases.

b. Habitation sites occur at a more or less fixed distance from the river, perhaps between 0.6 and 1.0 miles.

c. Special activity sites tend to cluster around habitation sites; as the latter increase in number, so do the former.

In dealing with the seven historic sites recorded during the survey, the primary association Coombs (1979b:84) detects is between historic activity in the desert and springs. The only historic sites for which this is not generally the case are mining locations.

Covering approximately the central portion of the project area, the Archaeological Inventory Report of the Owlshead/Amargosa-Mojave Basin Planning Units (Brooks et al. 1979) undertakes a three stage sample strategy, which includes random, stratified random and non-random transects. In this study the geomorphic associations of site locations are compared for historic and prehistoric sites. Brooks et al. (1979:iv) chose to interrelate the environmental variables through six geomorphic strata. These were mountain/hill, pediment/arroyo, playa, dune, Mojave Sink and lava. As can be seen in the following table, pediments were historically and prehistorically heavily utilized.

Site Distribution (Brooks et al. 1979:129-130)

| | Prehistoric Sites (N=126) | Historic Sites (N=40) |
|---|---|---|
| Pediment/Arroyo | 30% | 50% |
| Dune | 27% | 18% |
| Mojave Sink | 14% | |
| Mountain/Hill | 10% | 18% |
| Playa | 10% | 13% |
| Lava | 10% | |

Sites types appear to cluster in some of the strata with most of the flake scatters being recorded in the mountain/hill and pediment/arroyo areas where quarriable materials are available. Prehistoric camp sites occur most frequently in the dune or Mojave Sink areas, which Brooks et al. (1979:162) assumes is related to seed gathering activities.

The final report for the Ivanpah Project (Hall et al. 1981) bases site location analysis on the two land use models proposed by Barker et al. (1979). This work postulates that plant communities acted as both spatial and organizational foci in indigenous foraging/collecting subsistence systems, and to a large extent determined residential patterns. Similar notions have been proposed by Kroeber (1925), Steward (1938), Bean and Saubel (1972), Thomas (1973), Laird (1976), and Wilke (1978).

Both the Mojave River and the Eastern Desert Cordillera models include the premise that water is the limiting factor in settlement placement (Hall et al. 1981:13). The various resources, their location and time of year they are available are outlined by Hall et al. (1981:13-17). For the Eastern Desert Model the mountains, valleys, plains, playas, foothills and springs are all occupied/utilized with a cycle between small mobile camps and aggregation in the late fall and winter. Pinyon, agave, rice grass, Dicoria seed, waterfowl and tortoise are seasonally exploited. The Mojave River land use model centers on the river, the floodplain and the Mojave Sink with hunting, rice and mesquite the major food sources. Here resources were obtained and brought back to the home site. Fragmentation of the group never persisted over long periods of time.

The results of the Ivanpah survey generally tend to support the two land use models. In the eastern portion the playa sites contained lithics and/or millingstones; the mountains had roasting pits; alluvial fans were covered with lithic scatters and one valley/wash area contained a large base camp. The project did not test the Mojave River Model in that there were no major habitation sites recorded while surveying the line where it parallels the water course. Hall et al. (1981:44) states this probably indicates that (1) the corridor does not generally pass close enough to the river to encounter likely riverine habitats, and (2) where the corridor crosses the river, it simply does not cross at points where such sites would be expected to occur.

Macko et al. (1982:13) also approach their study with biotic and physical environments under consideration. It is assumed that the biotic and physical environments are structured and that humans utilized environments within a framework of potentialities and limitations defined by both the culture and the environment. A region such as the project area includes a range of "micro-environments" or localized environments possessing specific resource potentials. Utilized areas are selected for exploitation based on qualities, predictability and relative efficiency of procurement (Jochim 1976:16-24). Macko et al. (1982) combine this environmental approach (despite certain empirical problems) with a modified version of Binford's (1980) forager/collector model.

Findings from this portion of the IPP survey involve forty sites, the majority of which are locations in the creosote bush scrub plant community. Of note is the fact that no sites were located in the mountains or on the basin floors. Nearly three-quarters of the sites are associated with ephemeral drainages; and the majority of these have only the ephemeral drainages as associated hydrology (Macko et al. 1982:80-87). Two extensive site complexes crossed by the line have been identified as villages; the "Turner Springs" complex involves several archaeological loci and is located near the Mojave River. The "Silver Lake" complex includes several sites which are located at the northern edge of Silver Lake, presumably from a period when the lake contained water.

At the eastern end of the project work in Nevada, Tucker (1982) compares data on previously recorded sites with results from 213 miles of survey along the proposed IPP transmission line. The general characteristics of the previously recorded sites (N=66) can be summarized as follows: most are undated small locations which are located in the creosote bush biotic community and on a variety of landforms, although open plains predominate. Field camps are the next most frequent site type followed by residential bases and stations. All of the residential bases and the greatest percentage of field camps are located in the creosote bush community. The remaining field camps occur in the juniper-pinyon, blackbush and saltbrush communities. Among sites which contain temporally diagnostic artifacts, the majority are nearly evenly split between Archaic and Proto-Historic (Tucker 1982:7). The IPP survey in Nevada resulted in the identification of 158 loci (sites and isolates), for which frequency and percentage figures were compiled (Tucker 1982: 37-42). More than half of the loci are lithic scatters and the greatest part of the remainder are isolated artifacts. In terms of function, 90 percent are defined as locations. Only two residential bases and fourteen field camps were recorded. Cultural affiliation could be determined for approximately 30 percent of the loci, and a sizeable portion of these dated sites are historic (19). Of the dated prehistoric loci, Archaic and Proto-Historic predominate. The greatest number of loci are found within the juniper-pinyon (42 percent) and creosote bush (39 percent) communities. Within the juniper-pinyon community nearly half of the loci are locations found on topographic high-points such as ridges and knolls. Similarly the majority of loci in the creosote bush community are locations, found on alluvial fans. The single residential base and more than half (9 out of 14) of the field camps are also in the creosote bush community. The remaining field camps occur in the juniper-pinyon community. The blackbush and saltbush communities contain only "locations," which are scattered across a variety of landforms (Tucker 1982:44).

According to Tucker (1982:44) there appears to be a gradual shift away from the juniper-pinyon community and toward increased use of creosote brush scrub. This trend may reflect a shift from hunting (supplemented by gathering) to increased exploitation and/or manipulation of local flora (Tucker 1982:44).

## Sensitivity Criteria

The sensitivity analysis for the present study focused on three environmental variables:

1. Environmental zones, as defined for the sampling strategy (see above). These zones were actually defined on the basis of topography and hydrology. Our expectation was that the spring, Mojave River, playa margin, and valley/mountain contact zones would have relatively high site densities, while the valley and mountain zones would have relatively low or moderate site densities.

2. Vegetation, as determined during the biological resources component of the environmental studies for the Mead/McCullough-Victorville/Adelanto transmission line. It was expected that the Riparian, Desert Wash, Joshua Tree Woodland, and Pinyon/Juniper vegetation communities would have relatively high site densities, while the Creosote Bush Scrub community would have relatively low and moderate site densities.

3. Surficial geology, as determined during the geotechnical investigations of the Mead/McCullough-Victorville/Adelanto transmission line. As many of the larger known sites are found at sources of knappable stone, an attempt was made to determine if there was an identifiable "key" in predicting these source areas from generalized geological information.

## Data Compilation

The record search and environmental data were compiled on project base maps at a scale of ½ inch = 1 mile. Sample survey data were originally compiled on 7.5 or 15 minute U.S. Geological Survey quads and then transferred to the base maps. The sensitivity analysis was performed utilizing the project base map, but reference was made when necessary to source material compiled at a larger scale.

## INVENTORY RESULTS

### Previously Recorded Sites

A total of 241 previously recorded archaeological sites were identified in the one-mile-wide corridors (Table 9-3). Twenty-two of these are historic sites and are treated in the Historical Resources section of this report. Two sites are listed on the National Register; six additional sites have officially been recognized as eligible for the National Register; and 43 sites have been recommended as eligible by professional archaeologists.

Table 9-4 summarizes site types by the environmental zones utilized as sampling substrata in selecting transects (see above). Site types are derived from information available on site forms and thus are not rigorously defined. Nonetheless, they are indicative of the general distribution of known resources in the study area.

Lithic scatters comprise the most frequent site type. This amorphous group includes both large and small sites. Many of the larger sites probably represent the remains of a variety of prehistoric procurement activities conducted over a long period of time in areas where knappable stone was locally available. Where definite evidence of quarrying is reported, lithic sites were classified as quarry/workshops. Such sites may also contain loci of residential or other activities. Small lithic scatters, on the other hand, probably represent loci of a single or just a few episodes of prehistoric use. Lithic scatters are relatively frequent in all environmental zones except for the Spring zone; they are most frequent in the Valley and Mojave River zones.

Habitation sites are the next most frequent identifiable type of site. Such sites range from seasonal temporary camps utilized by family groups or small bands to relatively permanent villages inhabited by larger groups. Habitation sites have higher relative frequencies in the Spring and Playa Margin environmental zones than elsewhere. This may reflect the availability of water in these zones. The low relative frequency of habitation sites in the Mojave River zone is a surprising finding in view of the emphasis placed on this zone in the literature. No habitation sites are recorded for the Mountain zone.

As expected, roasting pits are generally confined to the mountain and valley/mountain contact zone, reflecting the availability of agave. Rock alignments/features are most frequent in the contact zone. This would be consistent with their use as hunting blinds or game control devices.

### Survey Results

A total of 23 mile-long transects were surveyed (Table 9-5). The majority of the transects fell within the valley environmental zone, but the mountain, contact, playa and river zones were also represented. Only three previously unrecorded sites and 28 isolates were located in the survey transects.

**SBr-5332 (Lk 30-Tr 2-B)**

This site consists of three rock features located on sandy soil in a seasonal drainage. Vegetation at the site is creosote bush scrub; the vegetation in the vicinity has been classified as Joshua Tree Woodland (JTW). The features consist of local metavolcanic rocks which vary in diameter from 5 to 20 centimeters. The rocks appear originally to have been stacked, perhaps two courses high, but are now scattered. The shape of each feature is different. One is "L" shaped, one is oval and the other square. The features measure approximately 1.5 meters by 2.0 meters. No prehistoric or historic artifacts were found in direct association with these features. Three isolated lithics were noted approximately 100 meters to the south and the Red Raven Mine is 0.5 kilometer to the west.

**SBr-5331 (Lk 38-Tr 1-1)**

Located on a low sandy terrace east of Kramer Junction, this site is composed of flakes and debitage scattered over approximately 1,000 square meters. More than 100 flakes, predominantly chert or chalcedony, were noted along with one rhyolite biface fragment. Although habitation debris, such as fire affected rock, was not observed, this area may have been a temporary camp. There are a wide variety of cherts/chalcedonies present. In addition, at least one basalt flake and one obsidian flake were recorded. No cores were noted and the lithic materials do not appear present in cobble form on the site. The site is located in the Creosote Bush Scrub (CBS) plant community.

**Lk 41-Tr 10-A** (recorded by Regional Information Center as an isolate)

This site is a small lithic scatter several miles east of Kramer Junction. Five flakes, (two jasper, two chalcedony and one rhyolite), were located over approximately 80 square meters of an extended alluvial rise. The site is located within the Saltbush Scrub (SS) plant community.

**Isolates**

The majority of isolated finds were single chaledony or chert flakes. The only historic isolates recorded were three hand-made metal buckets located north of Adelanto. Mining cairns were noted but not recorded, as was the trash along the railroad north of Highway 58.

**Summary**

A total of 3 sites in 23 linear miles of survey equates to 0.13 site/mile. By comparison, analysis of the record search along links which have been intensively surveyed reveals an overall density of 140 sites in 214.7 miles or 0.65 site/mile (see below). Thus, the survey resulted in a much lower site density than would have been expected from the record search. Although the reasons for this difference are not clear at this time, it seems likely that very high site densities on Links 16, 18, 21a, 21b and 22 have biased the record search data on the high side when compared to the rest of the study area. Too few sites were found during the survey, however, to provide a good basis for the analysis of environmental influences on settlement patterns.

## Sensitivity Results

### Archaeological Site Predictors

In order to assess the ability of environmental factors to predict archaeological sensitivity in unsurveyed areas, an analysis of record search data from links which have been intensively surveyed was conducted. While these data are probably not entirely representative of the study area as a whole, the sheer amount of previous survey does lend credence to the analysis. The first factor considered was environmental zone as defined for the survey sample (see above). The results of this analysis are presented in Table 9-6. The playa margin, valley and contact zones had site densities approximately equal to the overall average of 0.65 site/mile. The river and spring zones have densities which are considerably higher than the average, while no sites were found in the mountain zone despite 7.7 miles of intensive survey.

The fact that the playa margin zone produced a site density that is no higher than the average deserves some comment. Intensively surveyed links cross three playas: Silver Lake, Soda Lake, and Ivanpah Lake. One (Silver) produced a high site density, while the other two produced no sites at all. Experience elsewhere in the Mojave Desert has revealed both high and low site densities on playas, suggesting a bimodal distribution. In view of the fact that many playa margins are known to have high site densities and that playa margins have a higher frequency of habitation sites (see Table 9-4), it seems most conservative to treat the playa margin zone as highly sensitive where survey has not been conducted.

The second factor analyzed in the assessment of sensitivity was vegetation. The results are presented in Table 9-7. CBS, the most common plant community, showed considerable variability in site density, ranging from 0.1 site/mile in Link 10 to 1.9 in Link 18 with an overall average of 0.6. The ubiquity of this community along with this variability makes it a poor predictor of archaeological sensitivity. The Desert Wash (DW) Community in association with CBS, on the other hand, appears to be a good predictor. This type of vegetation occurs in numerous patches along several links. Thus, the overall site density of 1.1 sites/mile (nearly twice the overall average) does not appear to result from a few fortuitous associations. Pure stands of the DW community do not exceed the average site density significantly. The sample is quite small, however, and it may be better to treat this community as a predictor of high density as well.

Somewhat surprisingly, the presence of JTW in association with CBS does not yield high site density. No sites have been found in 13.5 miles of survey through this vegetation type in Link 6. The SS and Blackbush Scrub (BS) communities, like the CBS, yield overall site densities near the average. The BS community deserves further investigation as an archaeological predictor, however, in view of the fact that it yielded high site densities in Links 5, 8 and 9, a possible association which may be counter-balanced by unusually low site densities in Link 6.

The third factor considered for the sensitivity analysis was geology. Knappable lithic material is widely distributed in the study area as outcrops and in desert pavements. High quality sources are good predictors of archaeological sites. However, the identification of such sources in unsurveyed areas is problematical. Two approaches were taken in attempting to develop a "signature" for lithic procurement areas. First, known quarry workshop sites were plotted on aerial photographs of the project area. Unfortunately, no distinctive visual clues identifying associated desert pavements could be isolated. Second, surficial geology maps prepared for the Earth Resources study were reviewed with respect to known quarry/workshop sites. The results of this analysis are presented in Table 9-8. Again, no consistent pattern could be discerned. Therefore, geology has not been used as a deciding factor in the predictive sensitivity assessment.

### Previously Surveyed Areas

In areas that have been intensively surveyed, known site distributions formed the basis of the sensitivity assessment. Within previously surveyed areas, site densities tend to be either high or low; few areas with intermediate densities have been found. Nearest neighbor analysis would probably reveal strong clustering of sites. Areas of known high site densities include (but are not limited to) Silver Lake, the areas around Manix and Halloran Springs, and the Mojave River corridor.

### Sensitivity Assessment

The results of the sensitivity assessment are presented in Table 9-9. Criteria used in assigning sensitivity levels are presented below.

Maximum Sensitivity - This rating is reserved for areas with special legal status, specifically:

- Sites on or determined eligible for the National Register.
- BLM Final ACECs with high archaeological values.

Major Sensitivity - A site density of greater than 1.4 sites per lineal mile is expected. Site types include major habitation sites, large lithic procurement areas, dense lithic scatters on desert pavements, and a variety of special use locations. Specific factors used to assign a major sensitivity rating include:

- Areas with known site densities greater than 1.4 sites per lineal mile.
- Unsurveyed areas in the playa margin, Mojave River, and spring environmental zones.
- Unsurveyed areas in the DW, CBS/DW and Riparian plant communities.

Moderate Sensitivity - A site density of between 0.7 and 1.4 sites per mile is expected. Site types include temporary camps, lithic scatters, and a variety of special use locations. Areas operationally assigned moderate sensitivity ratings include:

- Areas with known site densities between 0.7 and 1.4 sites per lineal mile.
- Unsurveyed areas in the valley/mountain contact environmental zone where known sites are present in the vicinity.
- Unsurveyed areas in the valley environmental zone where high site densities are present in similar adjacent areas.

Minimal Sensitivity - A site density of less than 0.7 site per mile is expected. Sites tend to be short-term, special-use locations such as roasting pits, rock alignments/features, and small lithic scatters. Occasional small temporary camps may be present. The following areas were assigned minimum sensitivity:

- Areas with known site densities of less than 0.7 site per mile.
- Unsurveyed areas in the valley, mountain and valley/mountain contact zones with CBS, BS, SS and JTW plant communities, unless surveys in adjacent areas indicate the possibility of higher site densities.

## IMPACT ASSESSMENT/MITIGATION PLANNING

The purpose of the impact assessment was to predict the relative impacts of the routing alternatives. Because tower and access road locations were not known at this stage of project-planning, precise impacts to specific sites could not be assessed. Such assessments will be required later to meet the BLM's responsibilities under Section 106 of the National Historic Preservation Act. For the purposes of this report, the impact assessment was areal rather than site-specific. The levels of archaeological sensitivity defined in the inventory report formed the basis of the impact assessment, but requirements for access road construction were also taken into consideration. In order to include access roads and indirect impacts, a quarter-mile-wide impact area centered on the link centerlines was assumed.

### Methods

Impacts to archaeological resources were divided into three impact types:

1. Physical or visual impacts to sites included on or known to be eligible for inclusion on the National Register of Historic Places.

2. Physical or visual impacts to known sites or areas that have been identified as having special archaeological values, such as BLM final ACECs.

3. Physical or visual effects on archaeological resources based on known or expected site density and distribution.

These types consider direct impacts (which occur during construction) and indirect impacts (which result from increased erosional potential and increased access). In rating the severity of these impact types, three impact levels were defined:

- High: A high level of impact resulting from the construction, operation, maintenance or abandonment of the proposed project would potentially cause a significant or substantial adverse change or stress to archaeological resources.

- Moderate: A moderate impact would result if the construction, operation, maintenance or abandonment of the proposed project would potentially cause some adverse change or stress (ranging between significant and insignificant) to archaeological resources.

- Low: A low impact level is assigned if the potential for adverse impacts to significant sites is considered to be low.

As significant sites could occur anywhere along the alternatives, significant impacts are also possible in all cases. The impact levels refer to the relative probability that such impacts will be unavoidable.

In assigning impact levels a two-dimensional model was developed, using archaeological sensitivity and access road requirements as factors (see Impact Model below). In transmission line siting, the need for new access roads increases the probability of both direct and indirect impacts to archaeological resources, while requirements for upgraded roads increases the probability of direct impacts. Where existing access is sufficient, impacts are relatively avoidable in tower siting.

## ARCHAEOLOGICAL RESOURCES IMPACT MODEL

| **Sensitivity Level** | **Access Requirements** | | |
|---|---|---|---|
| | **New** | **Upgrade** | **Existing** |
| Maximum Sensitivity | High + | High + | Moderate + |
| Major Sensitivity | High + | High | Moderate + |
| Moderate Sensitivity | High - | Moderate | Low + |
| Minimal Sensitivity | Low + | Low | Low - |

**Value Per Mile**

| | | |
|---|---|---|
| High + | 20 | points |
| High | 17 | points |
| High - | 14 | points |
| Moderate + | 11 | points |
| Moderate | 8 | points |
| Moderate - | 5 | points |
| Low + | 1 | point |
| Low | 0.5 | point |
| Low - | 0.1 | point |

In assessing impacts, it was assumed that avoidance is the preferred mitigation measure. Probability of avoidance is factored into the sensitivity and impact models. Although the Mead/McCullough-Victorville/Adelanto Project passes through areas of very high archaeological sensitivity, mitigation (including data-recovery where necessary) can probably reduce impacts to an acceptable level for all routes. Hence, initial impacts rather than residual impacts (impacts after mitigation) are considered the more appropriate criteria for route selection.

### Results

The results of the impact assessment for archaeological resources are presented in Table 9-10.

## Mitigation Recommendations

Impacts to cultural resources can be mitigated following procedures developed by the Advisory Council of Historic Preservation (ACHP), published as 36 CFR 800. This will require (1) an intensive survey of the selected right-of-way and access roads, (2) an evaluation of identified resources for eligibility for the National Register of Historic Places in consultation with the State Historic Preservation Officers in California and Nevada, (3) determinations of effect on eligible properties in consultation with ACHP, and (4) implementation of prudent and feasible measures to avoid or reduce adverse impacts. In developing a mitigation plan, avoidance of impacts is the preferred option, as other mitigation measures generally entail the partial destruction of the resource.

## Conclusions

All possible routes pass through areas of major archaeological sensitivity; thus, it is doubtful that impacts to archaeological resources can be avoided altogether. The selection of links with sufficient existing access in areas of major sensitivity would significantly reduce adverse effects. Compliance with regulations implementing the National Historic Preservation Act, including intensive survey, evaluation of significance, and data-recovery mitigation where impacts cannot be avoided, will probably reduce impacts to an acceptable level.

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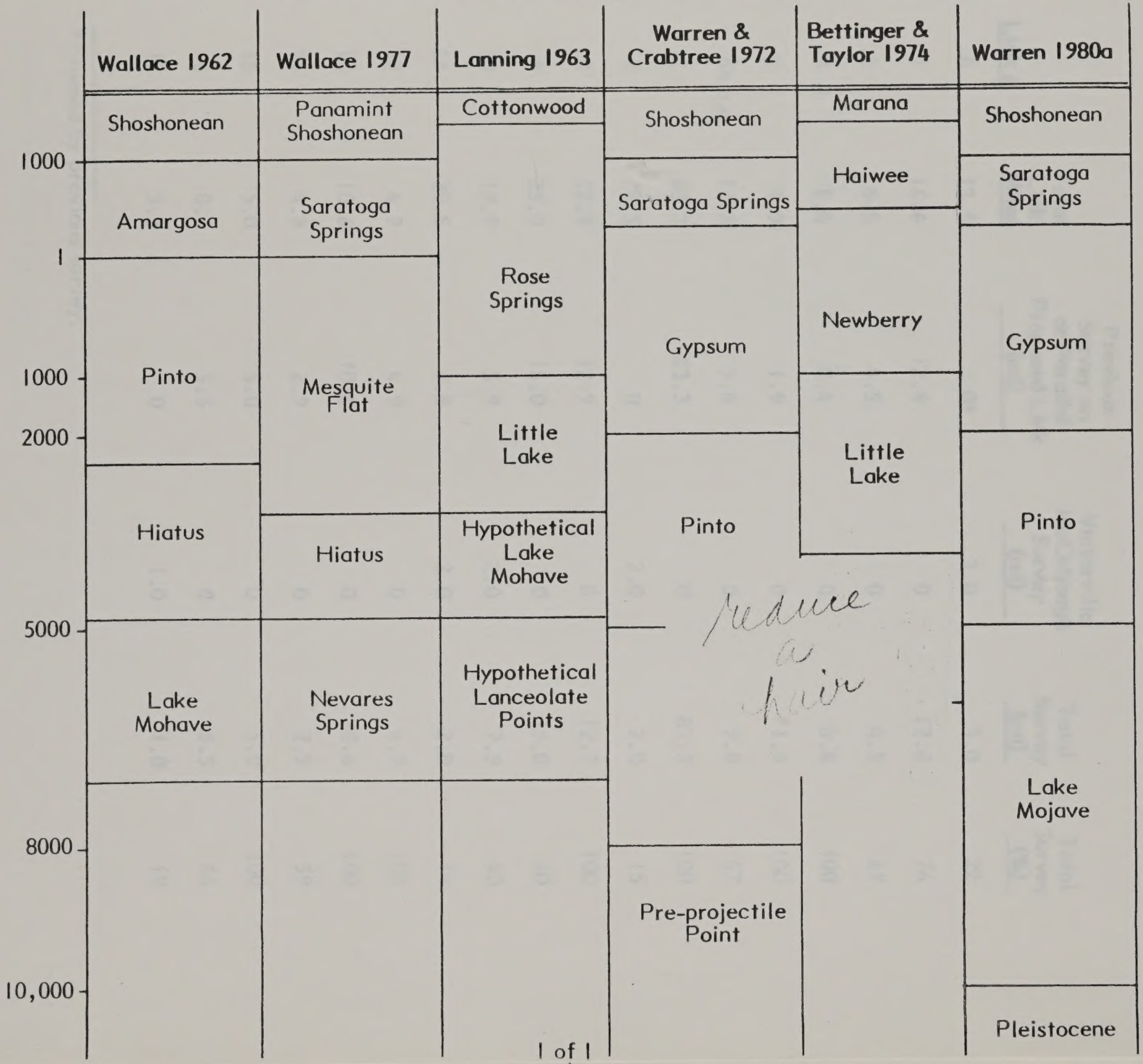
# TABLES

## TABLE 9-1
## CULTURAL CHRONOLOGIES FOR THE CALIFORNIA DESERT

| | Wallace 1962 | Wallace 1977 | Lanning 1963 | Warren & Crabtree 1972 | Bettinger & Taylor 1974 | Warren 1980a |
|---|---|---|---|---|---|---|
| | Shoshonean | Panamint Shoshonean | Cottonwood | Shoshonean | Marana | Shoshonean |
| | | | Rose Springs | | Haiwee | |
| 1000 | Amargosa | Saratoga Springs | | Saratoga Springs | | Saratoga Springs |
| | | | | | Newberry | |
| | | | | Gypsum | | Gypsum |
| 1 | Pinto | Mesquite Flat | | | | |
| 1000 | | | Little Lake | | Little Lake | |
| 2000 | | | | Pinto | | Pinto |
| | Hiatus | | | | | |
| | | Hiatus | Hypothetical Lake Mohave | | | |
| | | | | | Mohave | |
| 5000 | Lake Mohave | Nevares Springs | Hypothetical Lanceolate Points | Lake Mojave | | Lake Mojave |
| 8000 | | | | Pre-projectile Point | | |
| 10,000 | | | | | | |

# TABLE 9-1
# CULTURAL CHRONOLOGIES FOR THE CALIFORNIA DESERT


Wallace 1962
Wallace 1977
Lanning 1963
Warren & Crabtree 1972
Bettinger & Taylor 1974
Warren 1980a
1000
1
1000
2000
5000
8000
10,000
Shoshonean
Amargosa
Pinto
Hiatus
Lake Mohave
Panamint Shoshonean
Saratoga Springs
Mesquite Flat
Hiatus
Nevares Springs
Cottonwood
Rose Springs
Little Lake
Hypothetical Lake Mohave
Hypothetical Lanceolate Points
Shoshonean
Saratoga Springs
Gypsum
Pinto
Pre-projectile Point
Marana
Haiwee
Newberry
Little Lake
Shoshonean
Saratoga Springs
Gypsum
Pinto
Lake Mojave
Pleistocene

reduce a hair

# TABLE 9-2
# SURVEY INTENSITY

| Link # | Total Link Miles | Previous Survey on or Parallel Proposed Link (mi) | Victorville McCullough Survey (mi) | Total Survey (mi) | Total Survey (%) |
|---|---|---|---|---|---|
| 0 | 13.5 | 0* | 3.0 | 3.0 | 22 |
| 1 | 16.6 | 12.6 | 0 | 12.6 | 76 |
| 2 | 6.5 | 4.5 | 0 | 4.5 | 69 |
| 3 | 8.4 | 8.4 | 0 | 8.4 | 100 |
| 4 | 1.9 | 1.9 | 0 | 1.9 | 100 |
| 5a,b,c | 17.3 | 9.8 | 0 | 9.8 | 57 |
| 6 | 83.3 | 83.3 | 0 | 83.3 | 100 |
| 7 | 13.5 | 0 | 2.0 | 2.0 | 15 |
| 8 | 12.9 | 12.9 | 0 | 12.9 | 100 |
| 9 | 25.0 | 15.0 | 0 | 15.0 | 60 |
| 10 | 19.9 | 5.9 | 2.0 | 7.9 | 40 |
| 11 | 20.5 | 0.8 | 2.0 | 2.8 | 14 |
| 12 | 4.9 | 4.9 | 0 | 4.9 | 100 |
| 13 | 10.6 | 10.6 | 0 | 10.6 | 100 |
| 14 | 4.9 | 2.9 | 0 | 2.9 | 59 |
| 15 | 5.0 | 5.0 | 0 | 5.0 | 100 |
| 16 | 8.6 | 5.5 | 0 | 5.5 | 64 |
| 17 | 5.3 | 0 | 1.0 | 1.0 | 19 |

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*Crossed by previous survey.

Table 9-2 (continued)
Survey Intensity

| Link # | Total Link Miles | Previous Survey on or Parallel Proposed Link (mi) | Victorville McCullough Survey (mi) | Total Survey (mi) | Total Survey (%) |
|---|---|---|---|---|---|
| 18 | 3.7 | 3.7 | 0 | 3.7 | 100 |
| 19 | 8.0 | 0 | 0 | 0 | 0 |
| 20a,b | 38.9 | 0* | 2.0 | 2.0 | 5 |
| 21a,b | 14.0 | 14.0 | 0 | 14.0 | 100 |
| 22 | 21.2 | 21.2 | 0 | 21.2 | 100 |
| 23 | 13.8 | 13.8 | 0 | 13.8 | 100 |
| 24a | 27.3 | 6.5 | 1.0 | 7.5 | 27 |
| 24b | 6.1 | 0 | 0 | 0 | 0 |
| 25 | 11.7 | 11.7 | 0 | 11.7 | 100 |
| 26 | 0.6 | 0.6 | 0 | 0.6 | 100 |
| 27 | 13.4 | 3.4 | 0 | 3.4 | 25 |
| 28 | 3.2 | 0* | 0 | 0 | 0 |
| 29 | 2.1 | 0 | 0 | 0 | 0 |
| 30 | 2.1 | 0 | 1.0 | 1.0 | 48 |
| 31 | 5.7 | 0* | 0 | 0 | 0 |
| 32 | 16.4 | 11.5 | 0 | 11.5 | 70 |
| 33 | 15.5 | 10.0 | 0 | 10.0 | 65 |
| 34 | 1.4 | 1.4 | 0 | 1.4 | 100 |
| 35 | 4.7 | 4.7 | 0 | 4.7 | 100 |

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*Crossed by previous survey.

Table 9-2 (continued)
Survey Intensity

| Link # | Total Link Miles | Previous Survey on or Parallel Proposed Link (mi) | Victorville McCullough Survey (mi) | Total Survey (mi) | Total Survey (%) |
|---|---|---|---|---|---|
| 36 | 5.9 | 0* | 0 | 0 | 0 |
| 37 | 7.3 | 0* | 1.0 | 1.0 | 14 |
| 38 | 10.3 | 1.0 | 1.0 | 2.0 | 19 |
| 39 | 6.2 | 0 | 1.0 | 1.0 | 16 |
| 40a | 6.2 | 0 | 1.0 | 1.0 | 16 |
| 40b | 4.9 | 0 | 1.0 | 1.0 | 20 |
| 41 | 15.5 | 0* | 3.0 | 3.0 | 19 |
| 42 | 21.9 | 0* | 1.0 | 1.0 | 5 |
| 43 | 3.9 | 0 | 0 | 0 | 0 |
| Total | 570.5 | 287.5 | 22 | 310.5 | 54 |

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*Crossed by previous survey.

## TABLE 9-3
## PREVIOUSLY RECORDED ARCHAEOLOGICAL RESOURCES

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| 26 CK 3023 | Rockshelter/Petroglyph | REP | 1982 | M | 1 | |
| 26 CK 3388 | Quarry/lithic scatter | N | 1984 | M | 1 | |
| 26 CK 2633 | (Small) lithic scatter | N | 1977 | M | 1 | |
| 26 CK 2216 | Historic R-R Stop | NEP | 1983 | PM | 3,4 | |
| 26 CK 3044 | Purple glass scatter | N | 1982 | PM | 3,4 | |
| 26 CK 3045 | Isolated flake | N | 1982 | PM | 3,4,6 | |
| 26 CK 1620 | Aboriginal campsite | N | 1978 | PM | 6,4,3 | |
| 26 CK 2632 | Aboriginal campsite - Shoshonean Paiute | N | 1978 | PM | 6,4,3 | |
| 26 CK 2111 | Lithic scatter | N | 1979 | PM | 3 | |
| 26 CK 1618 | Utilized rockshelter | N | 1978 | V | 6 | |
| SBr-3727 | Habitation/lithic production | REP | 1982 | PM | 6 | |
| SBr-2335 | Shelter area w/milling & lithic | N | 1977 | PM | 6 | |
| SBr-4694 | Millingstone frags/lithic scatter | REP | 1981 | PM | 5c | |
| SBr-2242 | Agave roasting pit | N | 1973 | C | 5c | |
| SBr-4701 | Stone wall structure | N | 1981 | S | 5c | |
| SBr-812 | 2 roasting pits | N | 1974 | C | 5c | |

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NR = On or eligible for the National Register of Historic Places; REP = Recommended as eligible by a professional archaeologist; NEP = Recommended as not eligible by a professional archaeologist; N = No official status.

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environ-mental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-845 | Rock art | N | 1975 | C | 5c | |
| SBr-808 | Agave roasting pit | N | 1974 | C | 5c | |
| SBr-814 | Agave roasting pit | N | 1974 | C | 5c | |
| SBr-855 | Cave w/midden and hearth | N | 1973 | C | 5c | |
| SBr-867 | 2 roasting pits | N | 1973 | C | 5c | |
| SBr-2985 | Roasting pit | REP | 1978 | C | 5c | |
| SBr-2241 | Roasting pit and artifactual debris | N | 1980 | C | 5c | |
| SBr-831 | 2 roasting pits | N | 1974 | C | 7,8,5c | |
| Sbr-829 | Rock feature; possible burial | N | 1974 | C | 7,8,5c | |
| SBr-2986 | Roasting pits (5) | REP | 1978 | C | 7,8,5c | |
| SBr-830 | Roasting pit | N | 1974 | C | 7,8 | |
| SBr-907 | Agave roasting pit | N | 1975 | C | 7,8 | |
| SBr-3728 | Roasting pits (3) | REP | 1979 | C | 8,7,5c | |
| SBr-837 | Agave roasting pit | N | 1975 | C | 8,7,5c | |
| SBr-4700 | Agave roasting pits (2 or 3) | REP | 1981 | V | 8,7 | |
| SBr-2720 | Isolated scraper | N | n.d. | C | 7 | |
| SBr-2813 | Isolated metate | N | 1971 | C | 7 | |
| SBr-887 | Rock shelter | N | 1972 | V | 7 | |
| SBr-4888H | Historic smelter and mill site | REP | 1981 | V | 7 | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-4702H | Grave yard (?) | N | 1981 | V | 7,8,9,10 | |
| SBr-2973H | Historic isolated tin can | N | 1977 | V | 8 | |
| SBr-2974 | Temporary camp | N | 1977 | V | 8 | |
| SBr-2690 | Habitation site | REP | 1981 (1968) | V | 8 | |
| SBr-714 | Unknown | Unknown | Unknown | V | 8 | |
| SBr-133 | Campsite (?) | N | 1960 | V | 8 | |
| SBr-2961 | Unknown | Unknown | Unknown | V | 8 | |
| SBr-2692 | Ceramic scatter | N | 1968 | V | 8 | |
| SBr-4054 | Portable metates (6) | N | 1979 | V | 8 | |
| SBr-885 | Rock alignment | N | 1972 | V | 8 | |
| SBr-2812 | No description | N | n.d. | V | 8 | |
| SBr-1941 | Lithic scatter | N | 1970 | C | 6 | |
| SBr-3188 | Aboriginal flake scatter | N | 1978 | V | 6 | |
| SBr-2339 | Lithic scatter | N | 1979 (1977) | V | 6 | |
| SBr-4921-H | Euro-American mining operation | N | 1982 | C | 6 | |
| SBr-4922-H | Euro-American mining operation | N | 1982 | V | 6 | |
| SBr-4923-H | Euro-American structures | N | 1982 | C | 6 | |
| SBr-262 | Lithic scatter | REP | 1979 (1978, 1950) | PM | 6 | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-263 | Lithic scatter | REP | 1979 (1978, 1950) | PM | 6 | |
| SBr-264 | Lithic scatter | REP | 1978 (1977, 1950) | PM/C | 6 | collected |
| SBr-265 | Mojave Playa tools | REP | 1950 | PM | 6 | collected |
| SBr-1590 | Rock shelter | N | 1974 | C | 6 | |
| SBr-2341 | Rock shelter w/lithics and ceramics | N | 1977 | V | 6 | |
| SBr-2342 | Unknown | Unknown | Unknown | C | 6 | |
| SBr-4920 | Aboriginal trail | REP | 1982 | V | 6 | |
| SBr-3189 | Historic mine complex | REP | 1978 | V | 6 | |
| SBr-3741 | Cleared circle | N | 1979 | V | 6 | |
| SBr-3748 | Lithic scatter | N | 1979 | C | 6 | |
| SBr-3185 | Lithic scatter | N | 1978 | V | 6 | |
| SBr-2162 | Flaked lithic and groundstone | NR | 1973 | C/V | 6 | |
| SBr-3737 | Temporary campsite | N | 1979 | V | 6 | |
| SBr-3746 | Lithic workshop | N | 1979 | V | 6 | |
| SBr-3745 | Lithic scatter | N | 1979 | V | 6 | |
| SBr-2163 | Temporary camp | N | 1978 | V | 6 | |
| SBr-3738 | Lithic scatter | N | 1979 | V | 6 | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-3183 | Lithic workshop | NR | 1978 | V | 6 | |
| SBr-3181 | Lithic scatter | N | 1978 | V | 6 | |
| SBr-434 | Quarry | NR | 1961, 1979 | V | 6 | |
| SBr-4931 | Lithic scatter | REP | 1982 | V | 6 | |
| SBr-3561 | Lithic scatter | N | 1978 | V | 6 | |
| SBr-3564 | Lithic scatter | N | 1978 | V | 6 | |
| SBr-3565 | Lithic scatter | N | 1978 | V | 6 | |
| SBr-2335 | Rock shelters | N | 1977 | C | 6 | |
| SBr-3747 | Historic dump | N | 1979 | PM | 6 | |
| SBr-851 | Rock alignments and a rock circle | N | 1975 | C | 6 | |
| SBr-2327 | Lithic scatter | N | 1977 | C | 6 | |
| SBr-2326 | Lithic and ceramic scatter | N | 1977 | C | 6 | |
| SBr-3186 | Lithic scatter and 174 cairns | NR | 1982 (1978) | V | 6 | |
| SBr-4924 | Lithic scatter | N | 1982 | C | 6 | |
| SBr-3177 | Lithic scatter | N | 1978 | V | 6 | |
| SBr-3175 | Lithic workshop | REP | 1978 | V | 6 | |
| SBr-430 | Quarry | N | n.d. | V | 6 | |
| SBr-2344 | Quarry | REP | 1977 | C/V | 6 | |
| SBr-5323 | Lithic scatter | N | 1984 | V | 6 | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-5322 | Lithic scatter | N | 1984 | V | 6 | |
| SBr-3178 | Lithic workshop | REP | 1978 | V | 6 | |
| SBr-2345 | Lithic scatter | N | 1977 | V | 6,19 | |
| SBr-3729 | Lithic scatter | N | 1979 | V | 9 | |
| SBr-2681 | Petroglyphs | N | 1969 | C | 9 | |
| SBr-208 | Petroglyphs | N | 1949 | S | 9 | |
| SBr-2533 | Unknown | Unknown | Unknown | V | 9 | |
| SBr-2540 | Grinding slick | N | 1978 | V | 9 | |
| SBr-2541 | Hunting blind | N | 1978 | V | 9 | |
| SBr-2567 | 3 sleeping circles | N | 1978 | C | 9 | |
| SBr-2569 | Hunting blind | N | 1978 | C | 9 | |
| SBr-2571 | Petroglyphs | N | 1978 | C | 9 | |
| SBr-2565 | Rock alignments | N | 1978 | C | 9 | |
| SBr-2566 | Unknown | Unknown | Unknown | V | 9 | |
| SBr-2572 | Cairn and rock alignment | N | 1978 | V | 9 | |
| SBr-2368 | Isolated mano | N | 1977 | V | 9 | |
| SBr-4554H | Ore arrastre | N | 1981 | V | 10 | |
| SBr-904 | Unknown | Unknown | Unknown | V | 10 | |
| SBr-4553 | Lithic scatter | N | 1981 | V | 10 | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-1597 | Unknown | Unknown | Unknown | V | 10 | |
| SBr-2229 | Petroglyphs and rock alignments | N | 1977 (1976) | V | 10 | |
| SBr-4703 | Lithic scatter | N | 1981 | V | 12,10,11 | |
| SBr-132 | Lithic scatter | N | 1975 (1960) | PM | 11,12 | |
| SBr-267 | Lithic scatter | N | 1960 (1959) | PM | 11 | |
| SBr-268 | Lithic scatter | N | 1950 | PM/C | 11,12 | collected |
| SBr-1992 | Same as SBr-268 (above) | N | 1982 | C | 11,12 | |
| SBr-5119 | Lithic scatter (possible camp) | N | 1982 | PM | 11,12 | |
| SBr-4311 | Lithic scatter | N | 1980 | PM | 11 | |
| SBr-5116 | Lithic scatter | N | 1983 | PM | 11 | |
| SBr-5117 | Lithic scatter | N | 1983 | PM | 11 | Partially collected |
| SBr-3497H | Mining area | N | 1978 | C | 11 | |
| SBr-1065 | Rock alignment | REP | 1976 | C | 13 | |
| SBr-1067 | Rock alignment | N | 1976 | C | 13 | |
| SBr-1984 | No description | N | 1975 | C | 13 | |
| SBr-1066 | Rock alignment | REP | 1976 | C | 13 | |
| SBr-1064 | "Sleeping circle" | N | 1976 | C | 13 | |
| TR-1068 | Trail (?) | Unknown | Unknown | C/V | 13 | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-4704 | Ceramic scatter | REP | 1981 | C | 13 | |
| SBr-4705 | Lithic scatter | N | 1981 | V | 14 | |
| SBr-3576 | Water tank - historic | N | 1978 | C | 14 | |
| SBr-2151 | Historic canteen | N | n.d. | C | 15,16,17 | |
| SBr-3733 | Habitation site | N | 1979 | V | 16,13,14 | |
| SBr-3732 | Habitation site | N | 1979 | PM | 16,13,14 | |
| SBr-3734 | Habitation site | N | 1979 | PM | 16,13,14 | |
| SBr-260 | Campsite | N | 1950 | PM | 16 | |
| SBr-5114 | Lithic scatter and FAR | N | 1981 | PM | 16 | |
| SBr-5115 | Lithic scatter | N | 1981 | PM | 16 | |
| SBr-5351 | Habitation site | N | 1984 | PM | 16 | |
| SBr-261 | Campsite | N | 1950 | PM | 16 | |
| SBr-247 | Unknown | Unknown | Unknown | PM | 16 | |
| SBr-126 | Unknown | Unknown | Unknown | PM | 16 | |
| SBr-4706 | Lithic scatter and trail | REP | 1981 | M | 17,15,16 | |
| SBr-4708 | Lithic scatter | REP | 1981 | R | 18 | |
| SBr-4710 | Lithic scatter | REP | 1981 | R | 18 | |
| SBr-4707 | Unknown | REP | Unknown | R/V | 18 | |
| SBr-4709 | Rock feature | REP | 1981 | R/C | 18 | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-4711 | Lithic scatter | REP | 1981 | R | 18 | |
| SBr-4712 | Lithic scatter and cleared circle | REP | 1981 | R | 18 | |
| SBr-4730 | Unknown | Unknown | Unknown | R | 18,19,22 | |
| SBr-2223 | Lithic reduction site | NR | 1978 | V | 21a,19,20a | |
| SBr-2176 | Lithic workshop | N | 1955 | V | 20a | |
| SBr-2171 | Lithic scatter | N | 1955 | PM | 20a | |
| SBr-2178 | No description | N | n.d. | PM | 20a | |
| SBr-3739 | Lithic scatter (w/2 chipping circles) | N | 1979 | V | 21a | |
| SBr-3180 | Lithic scatter | N | 1978 | V | 21a | |
| SBr-3740 | Chipping circle | N | 1979 | V | 21a | |
| SBr-3743 | Lithic scatter | N | 1979 | V | 21a | |
| SBr-3744 | Lithic scatter | N | 1979 | V | 21a | |
| SBr-2165 | Lithic scatter | N | n.d. | PM | 20a | |
| SBr-4197 | Lithic scatter | | 1981 | C | 20a | |
| SBr-4196 | Lithic scatter | N | 1981 | C | 20a | |
| SBr-3140 | Lithic scatter | N | 1978 | C | 20b | |
| SBr-5250 | Unknown | Unknown | Unknown | V | 21a | |
| SBr-2835 | Lithic scatter | N | n.d. | V | 21a | |
| SBr-3181 | Lithic scatter | N | 1978 | V | 21a | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-3173 | Lithic workshop | N | 1978 | V | 21a | |
| SBr-3174 | Lithic scatter | N | 1978 | V | 21a | |
| SBr-4933 | Lithic scatter, hearth, cairn | N | 1982 | V | 21a | |
| SBr-4932 | Lithic scatter, hearth | N | 1982 | V | 21a | |
| SBr-853 | Campsite and workshop | N | 1955 | V | 21a | |
| SBr-4926 | Lithic scatter | N | 1982 | V | 21b | |
| SBr-3168 | Lithic scatter | N | 1978 | V | 21b | |
| SBr-2097 | Lithic workshop | N | 1968 | V | 21b | |
| SBr-2591 | Quarry site | N | 1979 | V | 21b | |
| SBr-3172 | Lithic scatter | N | 1978 | V | 21b | |
| SBr-2592 | No description | N | n.d. | V | 21b | |
| SBr-2101 | No description | N | n.d. | V | 21b | |
| SBr-2100 | Lithic workshop | NR | 1954, 1978 | V | 21b | |
| SBr-3713 | Unknown | Unknown | Unknown | R | 22 | |
| SBR-3731 | Lithic scatter | N | 1979 | R | 22 | |
| SBr-3694 | Habitation w/rock shelter | NR | 1979 | R | 22 | Fed. Reg.<br>Feb. 3, 1981 |
| SBr-4714 | Lithic scatter | REP | 1981 | R | 22 | |
| SBr-4715 | Lithic scatter | REP | 1981 | V | 22 | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-4716 | Lithic scatter | REP | 1981 | V | 22 | |
| SBr-4717 | Lithic scatter | REP | 1981 | V | 22 | |
| SBr-4718 | Lithic scatter/cairns | REP | 1981 | V | 22 | |
| SBr-2131A-G | Lithic workshop | REP | 1955, 1978<br>1979, 1981 | R/V | 22 | |
| SBr-2798 | Lithic scatter | N | 1976, 1984 | V | 22 | |
| SBr-4719 | Unknown | REP | Unknown | V | 22 | |
| SBr-4720 | Lithic scatter | REP | 1981 | V | 22 | |
| SBr-5364 | Lithic scatter | N | 1984 | R | 22 | |
| SBr-3696 | Lithic scatter | N | 1978 | V | 22 | |
| SBr-3721 | Lithic workshop | N | 1979 | V | 22 | |
| SBr-3695 | Lithic scatter | N | 1978 | V | 22 | |
| SBr-2098 | Lithic workshop | N | 1969 | V | 22 | |
| SBr-2632 | No description | N | 1972 | R | 22 | |
| SBr-1933 | Quarry site | REP | 1981 | C/R | 22 | |
| SBr-3722 | Lithic scatter | N | 1979 | C/R | 22 | |
| SBr-3723 | Lithic scatter | N | 1979 | R | 22 | |
| SBr-2093 | No description | N | 1966 | R | 22 | |
| SBr-4721 | Ceramic scatter | REP | 1981 | R | 22 | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environ-mental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-3301 | Lithic scatter | N | 1978 | R | 22 | |
| SBr-2110 | Lithic scatter | N | 1965 | R | 22 | |
| SBr-4908 | Lithic scatter | N | 1982 | R | 23,22,21b | |
| SBr-4909H | Historic trash dump | N | 1982 | R | 23,22 | |
| Salt Lake | Trail | Unknown | Unknown | R | 23,22 | |
| Santa Fe Trail | | | | | | |
| SBr-3165 | Habitation site | N | 1978 | R | 23 | |
| Site 3 | No site record available for this site | Unknown | Unknown | R | 23 | |
| SBr-3163 | Lithic scatter | N | 1978 | V | 23 | |
| SBr-3170 | Historic trash dump | REP | 1978 | V | 23 | |
| SBr-4928 | Aboriginal trail (a segment of the Mojave Trail) | REP | 1978 | V | 23 | |
| SBr-3785 | Quarry/workshop | N | 1973 | V | 23 | |
| SBr-3169 | Lithic scatter | N | 1978 | V | 23 | |
| SBr-3167 | 7 rock cairns and possible rock-lined pit | NRE | 1978 | C | 23 | |
| SBr-4929 | Lithic workshop | N | 1982 | C | 23 | |
| SBr-2284 | 2 rock rings and 1 scraper | N | 1972 | C | 24a | |
| SBr-187 | Aboriginal campsite | N | 1941, 1962<br>1973 | R | 24a | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-186A & B | Quarry site/isolated mano | N | 1940, 1973 | R | 24a | |
| SBr-4460 | Unknown | Unknown | Unknown | V | 24a | |
| SBr-4659 | 2 shelters and lithics | N | 1981 | V | 24a | |
| SBr-4431 | Temporary camp | N | 1981 | C | 25 | |
| SBr-4432 | Roasting pits and a metate | N | 1981 | M | 25,24a | |
| SBr-2343 | Shelter and flake scatter | N | 1977 | M | 25,24a | |
| SBr-3162 | Rock shelter and metate | N | 1978 | C | 25, 24a | |
| SBr-3553 | Historic mine shaft and structures | N | 1979 | S | 27 | |
| SBr-1480 | Unknown | Unknown | Unknown | V | 31 | |
| SBr-1461 | Unknown | Unknown | Unknown | V | 31 | |
| SBr-4961 | Lithic scatter | N | 1982 | V | 31,35 | collected |
| SBr-4934 | Habitation | N | 1982 | V | 32,33 | |
| SBr-3160 | Mine tailings and habitation debris | N | 1978 | V | 32,33 | |
| SBr-4930 | Historic copper mine | N | 1982 | V | 32,33 | |
| SBr-3161 | Historic trash dump | N | 1978 | V | 32,33 | |
| SBr-66 | Habitation | REP | 1949 | S/R | 32 | (Nomin. 1977) |
| SBr-67 | Habitation site | N | 1949 | S/R | 32,34 | |
| SBr-182 | Permanent campsite w/burials | N | 1941 | S/R | 32,34 | |

Table 9-3 (continued)
Previously Recorded Archaeological Resources

| Site # | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link | Comments |
|---|---|---|---|---|---|---|
| SBr-5227 | Temporary camp | N | 1983 | R | 33 | |
| SBr-70 | (May be the same as SBr-5227 - see above) | | | R | | |
| SBr-68 | Scattered camps | N | 1949 | S/R | 34 | |
| SBr-2628 | No description | N | 1954 | V | 36,30 | |
| SBr-435 | Quarry site | N | 1960 | V | 37 | |
| SBr-345 | No description | N | 1939, 1971 | V | 37 | |
| SBr-2257 | Quarry/workshop | N | 1971 | C | 39 | |
| SBr-5361 | Lithic scatter w/hearths | N | 1984 | V | 42 | |
| SBr-5362 | Habitation site | N | 1984 | V | 42 | |

# TABLE 9-4
# SUMMARY OF PREVIOUSLY RECORDED ARCHAEOLOGICAL RESOURCES

| SITE TYPE | Total | | ENVIRONMENTAL ZONE | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Playa Margin | | Valley | | Mountain | | Valley/ Mt. Contact | | Mojave River | | Spring | |
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Rock Art | 6 | 2 | 0 | 0 | 1 | 1 | 1 | 17 | 3 | 5 | 0 | 0 | 1 | 14 |
| Rock Shelter | 11 | 5 | 1 | 3 | 4 | 4 | 1 | 17 | 4 | 7 | 1 | 4 | 0 | 0 |
| Lithic Scatter | 77 | 32 | 15 | 45 | 38 | 35 | 2 | 33 | 10 | 17 | 12 | 44 | 0 | 0 |
| Habitation | 31 | 13 | 10 | 30 | 12 | 11 | 0 | 0 | 3 | 5 | 3 | 11 | 4 | 57 |
| Milling | 2 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Roasting Pits | 15 | 6 | 0 | 0 | 1 | 1 | 1 | 17 | 13 | 22 | 0 | 0 | 0 | 0 |
| Quarry/Workshop | 24 | 10 | 0 | 0 | 17 | 15 | 1 | 17 | 4 | 7 | 2 | 7 | 0 | 0 |
| Rock Alignments/ Features | 13 | 5 | 0 | 0 | 3 | 3 | 0 | 0 | 9 | 15 | 1 | 4 | 0 | 0 |
| Historic Sites | 22 | 9 | 3 | 9 | 10 | 9 | 0 | 0 | 5 | 8 | 2 | 7 | 2 | 29 |
| Other | 13 | 5 | 1 | 3 | 5 | 5 | 0 | 0 | 6 | 10 | 1 | 4 | 0 | 0 |
| Unknown | 27 | 11 | 3 | 9 | 17 | 15 | 0 | 0 | 2 | 3 | 5 | 19 | 0 | 0 |
| Total | 241 | 99 | 33 | 99 | 110 | 101 | 6 | 101 | 59 | 99 | 27 | 100 | 7 | 100 |

# TABLE 9-5
# TRANSECT SUMMARY

| Link | Transect | Sites Recorded | Isolates | Environmental Zones |
|---|---|---|---|---|
| 0 | 1 | 0 | 0 | V |
| 0 | 4 | 0 | 0 | V |
| 0 | 7 | 0 | 0 | PM/V |
| 7 | 3 | 0 | 0 | C/V |
| 7 | 6 | 0 | 0 | C/V |
| 10 | 7 | 0 | 0 | V |
| 10 | 9 | 0 | 2 | V |
| 11 | 7 | 0 | 3 | C/V/PM |
| 11 | 9 | 0 | 0 | M/C |
| 11* | 18 | NA | NA | V |
| 17 | 3 | 0 | 0 | M/R |
| 20 | 20 | 0 | 0 | C/V |
| 20 | 36 | 0 | 0 | V |
| 24a | 14 | 0 | 0 | V |
| 30 | 2 | 1 | 5 | C/V |
| 37 | 2 | 0 | 6 | V |
| 38 | 1 | 1 | 0 | V |
| 38* | 7 | NA | NA | V |
| 39 | 6 | 0 | 6 | V |
| 40a | 4 | 0 | 0 | V |
| 40b | 1 | 0 | 5 | V |
| 41 | 8 | 0 | 0 | V |
| 41 | 10 | 1 | 1 | V |
| 41 | 14 | 0 | 0 | V |
| 42 | 19 | 0 | 0 | V |
| Total |  | 3 | 28 |  |

Key:

PM = Playa Margin
V = Valley
M = Mountain
C = Mountain/Valley Contact
R = River
S = Spring

*Not surveyed

## TABLE 9-6
## THE DISTRIBUTION OF ARCHAEOLOGICAL SITES WITH RESPECT TO ENVIRONMENTAL ZONE

| | Playa M. | | | Valley | | | Mountain | | | Contact | | | River | | | Spring | | | Total Miles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Link | Mi. | Sites | Sites/ Mi. | Mi. | Sites | Sites/ Mi. | Mi. | Sites | Sites/ Mi. | Mi. | Sites | Sites/ Mi. | Mi. | Sites | Sites/ Mi. | Mi. | Sites | Sites/ Mi. | Surveyed |
| 6 | 3.5 | 4 | 1.1 | 57.3 | 30 | 0.5 | 2.2 | 0 | 0 | 18.3 | 7 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 81.3 |
| 21 | 0 | 0 | 0 | 14.0 | 15 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14.0 |
| 5 | 0.7 | 0 | 0 | 7.4 | 3 | 0.4 | 0 | 0 | 0 | 0.9 | 2 | 2.2 | 0 | 0 | 0 | 0.8 | 1 | 1.3 | 9.8 |
| 8 | 0 | 0 | 0 | 10.6 | 5 | 0.5 | 0 | 0 | 0 | 2.3 | 3 | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 | 12.9 |
| 9 | 0 | 0 | 0 | 7.5 | 7 | 0.9 | 0 | 0 | 0 | 5.6 | 3 | 0.5 | 0 | 0 | 0 | 0.4 | 1 | 2.5 | 15.0 |
| 10 | 0 | 0 | 0 | 7.9 | 1 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7.9 |
| 12 | 1.8 | 0 | 0 | 2.5 | 1 | 0.4 | 0 | 0 | 0 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.9 |
| 13 | 0 | 0 | 0 | 5.3 | 1 | 0.2 | 0.8 | 0 | 0 | 4.5 | 6 | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 | 10.6 |
| 14 | 0 | 0 | 0 | 2.6 | 1 | 0.4 | 0 | 0 | 0 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.9 |
| 15 | 0 | 0 | 0 | 0.7 | 2 | 2.9 | 2.4 | 0 | 0 | 1.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5.0 |
| 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.2 | 0 | 0 | 3.5 | 7 | 2.0 | 0 | 0 | 0 | 3.7 |
| 22 | 0 | 0 | 0 | 8.0 | 9 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 13.2 | 14 | 1.1 | 0 | 0 | 0 | 21.2 |
| 23 | 0 | 0 | 0 | 5.9 | 5 | 0.8 | 1.4 | 0 | 0 | 3.6 | 2 | 0.6 | 2.9 | 3 | 1.0 | 0 | 0 | 0 | 13.8 |
| 25 | 0 | 0 | 0 | 9.8 | 0 | 0 | 0.9 | 0 | 0 | 1.0 | 4 | 4.0 | 0 | 0 | 0 | 0 | 0 | 0 | 11.7 |
| Total | 6.0 | 4 | 0.7 | 139.5 | 80 | 0.6 | 7.7 | 0 | 0.0 | 39.2 | 29 | 0.7 | 19.6 | 24 | 1.2 | 1.2 | 2 | 1.7 | 214.7 |

## TABLE 9-7
## THE DISTRIBUTION OF ARCHAEOLOGICAL SITES WITH RESPECT TO PLANT COMMUNITY

| Link | Creosote Bush Scrub (CBS) | | | CBS/Joshua Tree Woodland | | | CBS/DW | | | Desert Wash (DW) | | | Saltbush Scrub (SS) | | | Blackbush Scrub (BS) | | | Barren | | Crops | | Total Miles Surveyed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Miles | Sites | Sites/ Mile | Miles | Sites | Sites/ Mile | Miles | Sites | Sites/ Mile | Miles | Sites | Sites/ Mile | Miles | Sites | Sites/ Mile | Miles | Sites | Sites/ Mile | Miles | Sites | Miles | Sites | |
| 6 | 42.5 | 13 | 0.3 | 13.5 | 0 | 0 | 13.5 | 22 | 1.6 | 0 | 0 | 0 | 1.3 | 3 | 2.3 | 10.5 | 3 | 0.3 | 0 | 0 | 0 | 0 | 81.3 |
| 21 | 11.9 | 15 | 1.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.8 | 0 | 0 | 0 | 0 | 0 | 0.3 | 0 | 0 | 0 | 14.0 |
| 5 | 5.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.3 | 6 | 1.4 | 0 | 0 | 0 | 0 | 9.8 |
| 8 | 5.4 | 2 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.8 | 1 | 0.4 | 4.7 | 5 | 1.1 | 0 | 0 | 0 | 0 | 12.9 |
| 9 | 12.5 | 9 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 2.0 | 2 | 1.0 | 0 | 0 | 0 | 0 | 15.0 |
| 10 | 7.9+ | 1 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7.9 |
| 12 | 2.0 | 1 | 0.5 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 | 0.9 | 0 | 0 | 0 | 4.9 |
| 13 | 8.9 | 7 | 0.8 | 0 | 0 | 0 | 1.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10.6 |
| 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.9 | 1 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.9 |
| 15 | 4.5 | 2 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5.0 |
| 18 | 3.7 | 7 | 1.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.7 |
| 22 | 19.7 | 23 | 1.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 21.2 |
| 23 | 5.8 | 5 | 0.9 | 0 | 0 | 0 | 5.3 | 2 | 0.4 | 1.5 | 3 | 2.0 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 0 | 13.8 |
| 25 | 11.7 | 4 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11.7 |
| Total | 142 | 89 | 0.6 | 13.5 | 0 | 0 | 21.5 | 24 | 1.1 | 4.9 | 4 | 0.8 | 8.6 | 4 | 0.5 | 21.5 | 16 | 0.7 | 1.2 | 0 | 1.5 | 0 | 214.7 |

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+ 2 miles WIRTH survey not on Ivanpah line.

# TABLE 9-8
# THE DISTRIBUTION OF QUARRY - WORKSHOP SITES WITH RESPECT TO SURFICIAL GEOLOGY

| Site # | Site Description | Approx. Site Size ($m^2$) | Env. Zone | Geologic Association |
|---|---|---|---|---|
| SBr-2162* | Flaked lithics and groundstone | 2,590,000 | C/V | Qal |
| SBr-3746 | Lithic workshop | 25 | V | Qal |
| SBr-2163* | Temp. camp and lithic workshop | 251-1,000 | V | Qv |
| SBr-3183* | Lithic workshop | 7,500 | V | Qal |
| SBr-434* | Quarry | 647,220 | V | Qal/Qoa |
| SBr-3175* | Lithic workshop | 7,500 | V | Qal |
| SBr-430* | Quarry | NA | V | Qoa |
| SBr-2344* | Quarry | 98,105 | C/V | Qal/Qoa |
| SBr-3178 | Lithic workshop | 2,000 | V | Ts |
| SBr-2223* | Lithic reduction site | 935,000 | V | Qoa |
| SBr-2176 | Lithic workshop | 4,047 | V | Qya |
| SBr-3173* | Lithic workshop | 175 | V | Qal |
| SBr-853* | Camp and lithic workshop | 1,025,925 | V | Ql/Qal |
| SBr-2097* | Lithic workshop | NA | V | Qal |
| SBr-2591* | Quarry | 1,456,245 | V | Qoa/Ts/Fault |
| SBr-2100* | Lithic workshop | NA | V | Qoa |
| SBr-2131 | Lithic workshop | 2,448,000 | R/V | Qoa/Qal |
| SBr-3721 | Lithic workshop | 400 | V | Qoa |

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*Checked on aerial photographs.
NA = Not available; site form does not include area information. Plot is only a dot.

Table 9-8 (continued)
Distribution of Quarry - Workshop Sites

| Site # | Site Description | Approx. Site Size ($m^2$) | Env. Zone | Geologic Association |
|---|---|---|---|---|
| SBr-2098 | Lithic workshop | NA | R | Qoa/Fault |
| SBr-1933 | Quarry | 576,000 | C/R | Ts/Fault |
| SBr-3785* | Quarry/lithic workshop | 400 | V | Qal |
| SBr-4929 | Lithic workshop | 4 | C | Qal |
| SBr-186 A & B | Quarry/isolate mano | 563,270 | R | Qya |
| SBr-435 | Quarry | 16,188 | V | Tv |
| SBr-2257 | Quarry/lithic workshop | NA | C | No map |
| SBr-3388 | Quarry/lithic scatter | NA | M | Tv |

## TABLE 9-9
## INVENTORY OF ARCHAEOLOGICAL RESOURCES

| Link No. | Length | Mileposts | | Description |
|---|---|---|---|---|
| | | Begin | End | |
| 0 | 13.5 | 0.0 | 2.8 | Predicted minimal sensitivity: V, CBS. |
| | | 2.8 | 3.0 | Major sensitivity: V, DW |
| | | 3.0 | 6.5 | Predicted minimal sensitivity: V, CBS, previous surveys in area did not locate cultural resources. |
| | | 6.5 | 10.6 | Major sensitivity: PM, CBS and SS. |
| | | 10.6 | 13.5 | Predicted minimal sensitivity: V, CBS and SS, previous surveys in area did not locate cultural resources. |
| 1 | 16.6 | 0.0 | 8.2 | Known minimal sensitivity: V, CBS and DW, previous survey did not locate cultural resources. |
| | | 8.2 | 8.7 | Moderate sensitivity: M, CBS, known site location. |
| | | 8.7 | 16.6 | Known minimal sensitivity: V, CBS, previous survey did not locate cultural resources. |
| 2 | 6.5 | 0.0 | 0.3 | Moderate sensitivity: C, CBS, known site location. |
| | | 0.3 | 3.8 | Known minimal sensitivity: V and C, CBS. |
| | | 3.8 | 4.6 | Major sensitivity: PM, CBS. |
| | | 4.6 | 5.8 | Known minimal sensitivity: V (lake bottom), CBS and SS, previous survey did not locate cultural resources. |
| | | 5.8 | 6.5 | Major sensitivity: PM, CBS. |
| 3 | 8.4 | 0.0 | 0.2 | Moderate sensitivity: V, CBS with JTW, known site location. |
| | | 0.2 | 3.5 | Known minimal sensitivity: V, CBS with JTW, previous survey did not locate cultural resources. |

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Key:

V = Valley
M = Mountains
C = Valley/Mountain Contact
PM = Playa Margin
R = River
S = Spring

CBS = Creosote Bush Scrub
DW = Desert Wash
SS = Saltbush Scrub
BS = Blackbush Scrub
JTW = Joshua Tree Woodland

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts Begin | Mileposts End | Description |
|---|---|---|---|---|
| 3 (cont.) | | 3.5 | 4.1 | Major sensitivity: PM, CBS and SS. |
| | | 4.1 | 7.5 | Known minimal sensitivity: PM (dry lake), SS and barren, previous survey did not locate cultural resources. |
| | | 7.5 | 8.4 | Major sensitivity: PM, SS and barren, known site locations. |
| 4 | 1.9 | 0.0 | 1.9 | Major sensitivity: V and PM, CBS and SS. |
| 5a | 0.2 | 0.0 | 0.2 | Major sensitivity: V, CBS. |
| 5b | 4.8 | 0.0 | 0.4 | Major sensitivity: V, CBS. |
| | | 0.4 | 2.8 | Predicted minimal sensitivity: V, CBS, previous survey in area did not locate cultural resources. |
| | | 2.8 | 3.3 | Major sensitivity: V, CBS. |
| | | 3.3 | 3.6 | Moderate sensitivity: V, SS. |
| | | 3.6 | 4.8 | Predicted minimal sensitivity: V (lake bottom), SS and barren, previous survey in area did not locate cultural resources. |
| 5c | 12.3 | 0.0 | 1.3 | Predicted minimal sensitivity: V (lake bottom), SS and barren, previous survey in area did not locate cultural resources. |
| | | 1.3 | 1.7 | Major sensitivity: PM and V, CBS, known site location. |
| | | 1.7 | 7.3 | Known minimal sensitivity: V, CBS and BS, previous survey did not locate cultural resources. |
| | | 7.3 | 9.6 | Predicted minimal sensitivity: V and S, BS, previous surveys in area did not locate cultural resources. |
| | | 9.6 | 10.3 | Moderate sensitivity: C and S, BS, known site location. |
| | | 10.3 | 12.3 | Major sensitivity: C, BS, known site locations. |

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts Begin | Mileposts End | Description |
|---|---|---|---|---|
| 6 | 83.3 | 0.0 | 0.3 | Major sensitivity: V (lake bottom), barren, known site locations. |
| | | 0.3 | 1.9 | Moderate sensitivity: V and PM, barren, SS and CBS, known site location. |
| | | 1.9 | 8.1 | Known minimal sensitivity: V and C, CBS, previous surveys located 1 site. |
| | | 8.1 | 8.3 | Major sensitivity: C, CBS, known site locations. |
| | | 8.3 | 9.5 | Known minimal sensitivity: C, CBS and BS with JTW, previous surveys did not locate cultural resources. |
| | | 9.5 | 12.4 | Maximum sensitivity: C, M, V, BS with JTW, previous survey located 1 site; in Clark Mountain ACEC. |
| | | 12.4 | 29.0 | Known minimal sensitivity: V, BS, CBS with JTW, previous survey located 2 sites. |
| | | 29.0 | 30.2 | Moderate sensitivity: V and C, CBS with JTW, BS, known site locations. |
| | | 30.2 | 46.6 | Known minimal sensitivity: V and C, BS, CBS and JTW, DW, previous survey located 3 sites. |
| | | 46.6 | 52.4 | Major sensitivity: V, PM, C, M, CBS, SS and barren, DW, high known site density with 1 site on National Register. |
| | | 52.4 | 68.3 | Known minimal sensitivity: V, C, PM and M, CBS, previous survey located 1 site. |
| | | 68.3 | 69.5 | Maximum sensitivity: National Register eligible site. |
| | | 69.5 | 74.3 | Major sensitivity: V, C and M, CBS and DW, high known site density. |
| | | 74.3 | 74.8 | Maximum sensitivity: National Register eligible site. |
| | | 74.8 | 83.3 | Major sensitivity: Known high site density. |

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts<br>Begin | <br>End | Description |
|---|---|---|---|---|
| 7 | 13.5 | 0.0 | 0.5 | Major sensitivity: C, V, BS, known site locations. |
| | | 0.5 | 2.4 | Maximum sensitivity: C, BS, known site locations; in Clark Mountain ACEC. |
| | | 2.4 | 5.8 | Predicted minimal sensitivity: V, C, BS, CBS and JTW, CBS and SS, survey in area did not locate cultural resources. |
| | | 5.8 | 7.9 | Major sensitivity: C, V, SS, DW, CBS and JTW, high known site density. |
| | | 7.9 | 13.5 | Predicted minimal sensitivity: V, CBS and JTW, BS, previous survey in area did not locate cultural resources. |
| 8 | 12.9 | 0.0 | 0.7 | Major sensitivity: C, V, BS, known site locations. |
| | | 0.7 | 1.6 | Maximum sensitivity: C, BS, known site locations; in Clark Mountain ACEC. |
| | | 1.6 | 5.8 | Known minimal sensitivity: C, V, BS, CBS, previous survey did not locate cultural resources. |
| | | 5.8 | 8.6 | Major sensitivity: V, CBS and SS, SS, DW, high known site density. |
| | | 8.6 | 12.9 | Known minimal sensitivity: V, SS, CBS and SS, CBS, BS, previous survey did not locate cultural resources. |
| 9 | 25.0 | 0.0 | 1.5 | Known minimal sensitivity: V, C, BS, previous survey did not locate cultural resources. |
| | | 1.5 | 2.9 | Moderate sensitivity: V, C, BS, CBS, known site locations. |
| | | 2.9 | 5.7 | Known minimal sensitivity: C, M, CBS, previous survey did not locate cultural resources. |
| | | 5.7 | 6.8 | Major sensitivity: C, V and S, CBS, high known site density. |
| | | 6.8 | 7.6 | Maximum sensitivity: V and S, CBS, high known site density; Halloran Wash ACEC. |

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts Begin | Mileposts End | Description |
|---|---|---|---|---|
| 9 (cont.) | | 7.6 | 8.4 | Major sensitivity: V, CBS, high known site density. |
| | | 8.4 | 19.6 | Predicted minimal sensitivity: V, C, CBS, previous survey in area did not locate cultural resources. |
| | | 19.4 | 21.4 | Moderate sensitivity: V, C, CBS, SS and barren. |
| | | 21.4 | 21.7 | Major sensitivity: C, PM, CBS, known site location. |
| | | 21.7 | 22.2 | Moderate sensitivity: C, V, CBS. |
| | | 22.2 | 25.0 | Predicted minimal sensitivity: V, C, CBS, previous survey in area did not locate cultural resources. |
| 10 | 19.9 | 0.0 | 4.3 | Predicted minimal sensitivity: V, BS, CBS, previous survey in area located few cultural resources. |
| | | 4.3 | 5.6 | Major sensitivity: V, CBS, known high site density. |
| | | 5.6 | 7.9 | Predicted minimal sensitivity V, CBS, survey in area did not locate cultural resources. |
| | | 7.9 | 8.3 | Moderate sensitivity: V, CBS, known site location. |
| | | 8.3 | 19.9 | Predicted minimal sensitivity: V, C, CBS, previous survey in area did not locate cultural resources. |
| 11 | 20.5 | 0.0 | 1.8 | Major sensitivity: V and PM, CBS, SS and barren, high known site density. |
| | | 1.8 | 3.6 | Predicted minimal sensitivity: V (dry lake), barren. |
| | | 3.6 | 5.4 | Major sensitivity: PM, SS, known site locations. |
| | | 5.4 | 7.0 | Maximum sensitivity: PM, V and C, SS, CBS with minor DW, known site location; in Soda ACEC. |
| | | 7.0 | 8.9 | Known minimal sensitivity: C and M, CBS with minor DW, survey located 1 site. |
| | | 8.9 | 10.8 | Moderate sensitivity: C, CBS. |

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts Begin | Mileposts End | Description |
|---|---|---|---|---|
| 11 (cont.) | | 10.8 | 11.9 | Predicted minimal sensitivity: C and V, CBS. |
| | | 11.9 | 12.8 | Moderate sensitivity: V and C, CBS. |
| | | 12.8 | 13.4 | Predicted minimal sensitivity: M, CBS. |
| | | 13.4 | 14.5 | Moderate sensitivity: C, CBS. |
| | | 14.5 | 15.3 | Predicted minimal sensitivity: M, CBS. |
| | | 15.3 | 19.8 | Moderate sensitivity: C and V, CBS, DW. |
| | | 19.8 | 20.5 | Major sensitivity: V and R, DW. |
| 12 | 4.9 | 0.0 | 0.8 | Major sensitivity: V and PM, CBS, known site locations. |
| | | 0.8 | 4.9 | Known minimal sensitivity: PM, V and C, CBS, SS and barren, CBS with DW, previous survey did not locate cultural resources. |
| 13 | 10.6 | 0.0 | 0.6 | Known minimal sensitivity: M, CBS, previous survey did not locate cultural resources. |
| | | 0.6 | 1.6 | Major sensitivity: C, CBS, high known site density. |
| | | 1.6 | 8.1 | Known minimal sensitivity: V and C, CBS and DW, previous survey did not locate cultural resources. |
| | | 8.1 | 9.2 | Moderate sensitivity: C, CBS. |
| | | 9.2 | 10.3 | Known minimal sensitivity: C, V, CBS, previous survey did not locate cultural resources. |
| | | 10.3 | 10.6 | Major sensitivity: V, CBS, known site locations. |
| 14 | 4.9 | 0.0 | 3.2 | Major sensitivity: V and C, CBS, DW, known site locations. |
| | | 3.2 | 4.9 | Known minimal sensitivity: V, DW, previous survey did not locate cultural resources. |

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts Begin | Mileposts End | Description |
|---|---|---|---|---|
| 15 | 5.0 | 0.0 | 5.0 | Known minimal sensitivity: M and C, DW, CBS, previous survey located I site. |
| 16 | 8.6 | 0.0 | 1.9 | Maximum sensitivity: V and PM, CBS, DW, high known site density; in Cronese ACEC. |
|  |  | 1.9 | 8.6 | Predicted minimal sensitivity: PM, V, C and M, CBS, DW, previous survey in the area located few cultural resources. |
| 17 | 5.3 | 0.0 | 3.1 | Major sensitivity: R, C and M, DW, CBS. |
|  |  | 3.1 | 4.2 | Moderate sensitivity: C, CBS. |
|  |  | 4.2 | 5.3 | Major sensitivity: M and C, CBS, known site location. |
| 18 | 3.7 | 0.0 | 2.1 | Major sensitivity: R, C, V, CBS, high known site density. |
|  |  | 2.1 | 3.2 | Maximum sensitivity: R, V, CBS, Afton Canyon ACEC. |
|  |  | 3.2 | 3.7 | Major sensitivity: R, V, CBS, high known site density. |
| 19 | 7.9 | 0.0 | 0.6 | Major sensitivity: R, V, CBS. |
|  |  | 0.6 | 6.5 | Moderate sensitivity: V, C, CBS. |
|  |  | 6.5 | 7.9 | Major sensitivity: V, CBS and DW, known site location. |
| 20a | 21.0 | 0.0 | 0.7 | Major sensitivity: V, CBS, known site location. |
|  |  | 0.7 | 8.1 | Moderate sensitivity: V, CBS, SS. |
|  |  | 8.1 | 8.5 | Major sensitivity: V, PM, SS and barren. |
|  |  | 8.5 | 10.2 | Predicted minimal sensitivity: V (dry lake), barren. |
|  |  | 10.2 | 11.0 | Major sensitivity: PM, V, barren and SS, known site locations. |
|  |  | 11.0 | 11.7 | Moderate sensitivity: PM, V, SS, CBS. |
|  |  | 11.7 | 17.0 | Predicted minimal sensitivity: V, CBS. |

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts<br>Begin | <br>End | Description |
|---|---|---|---|---|
| 20a (cont.) | | 17.0 | 21.0 | Moderate sensitivity: V, C, CBS, known site locations. |
| 20b | 17.9 | 0.0 | 7.8 | Moderate sensitivity: V, C, CBS, known site locations. |
| | | 7.8 | 17.9 | Predicted minimal sensitivity: V, C, CBS, CBS and JTW, SS. |
| 21a | 6.0 | 0.0 | 0.5 | Maximum sensitivity: National Register eligible site. |
| | | 0.5 | 4.8 | Major sensitivity: V, CBS, SS, barren, high known site density. |
| | | 4.8 | 6.0 | Known minimal sensitivity: V, CBS, previous survey did not locate cultural resources. |
| 21b | 8.0 | 0.0 | 2.7 | Known minimal sensitivity: V, CBS, previous survey did not locate cultural resources. |
| | | 2.7 | 5.8 | Major sensitivity: V, CBS, SS and barren, high known site density. |
| | | 5.8 | 6.4 | Maximum sensitivity: National Register eligible sites. |
| | | 6.4 | 8.0 | Major sensitivity: high known site density. |
| 22 | 21.1 | 0.0 | 2.1 | Major sensitivity: R, V, C, CBS, high known site density. |
| | | 2.1 | 3.8 | Known minimal sensitivity: R, V, CBS, previous survey did not locate cultural resources. |
| | | 3.8 | 8.8 | Major sensitivity: R, V, CBS, high known site density. |
| | | 8.8 | 14.2 | Known minimal sensitivity: R, V, CBS, croplands, previous survey did not locate cultural resources. |
| | | 14.2 | 21.1 | Major sensitivity: R, V, C, CBS, SS and DW, high known site density. |
| 23 | 13.8 | 0.0 | 0.9 | Major sensitivity: R, DW, high known site density. |
| | | 0.9 | 4.3 | Known minimal sensitivity: R, V, DW, SS, CBS, croplands, previous survey did not locate cultural resources. |

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts Begin | Mileposts End | Description |
|---|---|---|---|---|
| 23 (cont.) | | 4.3 | 5.4 | Major sensitivity: V, croplands, CBS, high known site density. |
| | | 5.4 | 6.5 | Known minimal sensitivity: V, CBS, previous survey did not locate cultural resources. |
| | | 6.5 | 11.8 | Moderate sensitivity: V, C, CBS, CBS, CBS with DW, known site locations. |
| | | 11.8 | 13.8 | Known minimal sensitivity: C, M, CBS, previous survey did not locate cultural resources. |
| 24a | 27.3 | 0.0 | 1.3 | Major sensitivity: Mountain, C, CBS, known site locations. |
| | | 1.3 | 6.6 | Predicted minimal sensitivity: C, V, CBS, previous survey in the area did not locate cultural resources. |
| | | 6.6 | 7.0 | Moderate sensitivity: C, CBS, known site location. |
| | | 7.0 | 11.5 | Predicted minimal sensitivity: V, CBS, previous survey in the area did not locate cultural resources. |
| | | 11.5 | 11.8 | Major sensitivity: V, CBS. |
| | | 11.8 | 15.5 | Predicted minimal sensitivity: V, CBS with DW. |
| | | 15.5 | 21.4 | Major sensitivity: R, V, CBS, high known site density. |
| | | 21.4 | 27.3 | Predicted minimal sensitivity: V, CBS, previous survey in area did not locate cultural resources. |
| 24b | 6.1 | 0.0 | 0.4 | Moderate sensitivity: V, SS. |
| | | 0.4 | 6.1 | Predicted minimal sensitivity: V, SS, CBS. |
| 25 | 11.7 | 0.0 | 0.5 | Known minimal sensitivity: M, CBS, previous survey did not locate cultural resources. |
| | | 0.5 | 1.6 | Major sensitivity: M, C, CBS, high known site density. |
| | | 1.6 | 11.7 | Known minimal sensitivity: C, V, CBS, previous survey did not locate cultural resources. |

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts Begin | Mileposts End | Description |
|---|---|---|---|---|
| 26 | 0.6 | 0.0 | 0.6 | Predicted minimal sensitivity: V, CBS, previous survey in the area did not locate cultural resources. |
| 27 | 13.4 | 0.0 | 2.4 | Predicted minimal sensitivity: V, CBS, previous survey in the area did not locate cultural resources. |
| | | 2.4 | 3.6 | Major sensitivity: S, V, CBS, known site location. |
| | | 3.6 | 11.2 | Predicted minimal sensitivity: S, V, C, CBS. |
| | | 11.2 | 12.4 | Major sensitivity: R, CBS, DW. |
| | | 12.4 | 13.4 | Known minimal sensitivity: R, DW, RW, CBS, previous survey did not locate cultural resources. |
| 28 | 3.2 | 0.0 | 0.9 | Major sensitivity: R, CBS. |
| | | 0.9 | 3.2 | Predicted minimal sensitivity: V, SS, CBS. |
| 29 | 2.1 | 0.0 | 2.1 | Predicted minimal sensitivity: V, C, CBS. |
| 30 | 2.1 | 0.0 | 0.5 | Predicted minimal sensitivity: V, C, CBS. |
| | | 0.5 | 0.7 | Moderate sensitivity: C, CBS. |
| | | 0.7 | 1.2 | Predicted minimal sensitivity: V, C, CBS. |
| | | 1.2 | 2.1 | Moderate sensitivity: C, JTW, known site locations. |
| 31 | 5.7 | 0.0 | 0.6 | Moderate sensitivity: C, V, JTW. |
| | | 0.6 | 3.1 | Predicted minimal sensitivity: V, JTW, CBS and SS. |
| | | 3.1 | 5.7 | Moderate sensitivity: V, JTW, CBS, known site locations. |
| 32 | 16.4 | 0.0 | 5.2 | Known minimal sensitivity: V, CBS, previous survey in the area located 1 site. |
| | | 5.2 | 7.5 | Moderate sensitivity: V, CBS, known site locations. |
| | | 7.5 | 13.4 | Predicted minimum sensitivity: V, C, CBS, previous survey in the area located 1 site. |

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts Begin | Mileposts End | Description |
|---|---|---|---|---|
| 32 (cont.) | | 13.4 | 16.4 | Major sensitivity: R, S, C, CBS, DW, RW, cropland, high known site density; potential National Register district - Lanes Station District. |
| 33 | 15.5 | 0.0 | 5.5 | Predicted minimal sensitivity: C, V, CBS, previous survey in the area located I site. |
| | | 5.5 | 7.0 | Moderate sensitivity: V, CBS, known site locations. |
| | | 7.0 | 13.5 | Predicted minimal sensitivity: V, CBS, previous survey in the area located I site. |
| | | 13.5 | 15.5 | Major sensitivity: R, CBS, RW, known site locations. |
| 34 | 1.4 | 0.0 | 1.4 | Known minimal sensitivity: R, CBS, DW, previous survey did not locate cultural resources. |
| 35 | 4.7 | 0.0 | 4.7 | Known minimal sensitivity: V, CBS, previous survey located I site. |
| 36 | 5.8 | 0.0 | 1.3 | Major sensitivity: R, V, CBS, SS. |
| | | 1.3 | 5.2 | Predicted minimal sensitivity: V, CBS, JTW. |
| | | 5.2 | 5.8 | Moderate sensitivity: V, JTW, known site location. |
| 37 | 7.3 | 0.0 | 4.3 | Predicted minimal sensitivity: V, CBS, SS, survey in the area did not locate cultural resources. |
| | | 4.3 | 5.7 | Major sensitivity: V, CBS, high known site density. |
| | | 5.7 | 7.3 | Moderate sensitivity: V, C, CBS, JTW. |
| 38 | 10.3 | 0.0 | 9.4 | Predicted minimal sensitivity: V, C, CBS, SS, CBS and SS, survey in the area located few cultural resources. |
| | | 9.4 | 10.3 | Moderate sensitivity: C, CBS, JTW. |
| 39 | 6.2 | 0.0 | 1.7 | Moderate sensitivity: C, V, JTW, CBS, CBS with DW. |
| | | 1.7 | 2.0 | Predicted minimal sensitivity: V, CBS. |

Table 9-9 (continued)
Inventory of Archaeological Resources

| Link No. | Length | Mileposts<br>Begin | <br>End | Description |
|---|---|---|---|---|
| 39 (cont.) | | 2.0 | 3.9 | Major sensitivity: V, C, SS with DW, CBS with DW, CBS, known site location. |
| | | 3.9 | 6.2 | Predicted minimal sensitivity: V, CBS, SS, survey in the area did not locate cultural resources. |
| 40a | 6.2 | 0.0 | 6.2 | Predicted minimal sensitivity: V, SS, CBS, survey in the area did not locate cultural resources. |
| 40b | 4.9 | 0.0 | 4.9 | Predicted minimal sensitivity: V, CBS, survey in the area did not locate cultural resources. |
| 41 | 15.5 | 0.0 | 2.5 | Predicted minimal sensitivity: V, C, SS. |
| | | 2.5 | 6.0 | Moderate sensitivity: C, V, PM, SS. |
| | | 6.0 | 15.5 | Predicted minimal sensitivity: V, SS, CBS, survey in the area located I site. |
| 42 | 21.9 | 0.0 | 14.2 | Predicted minimal sensitivity: V, C, SS, CBS. |
| | | 14.2 | 17.0 | Moderate sensitivity: V, PM, CBS, known site locations. |
| | | 17.0 | 17.4 | Major sensitivity: PM, V, CBS. |
| | | 17.4 | 17.7 | Moderate sensitivity: V, CBS. |
| | | 17.7 | 21.9 | Predicted minimal sensitivity: V, CBS, SS. |
| 43 | 3.9 | 0.0 | 0.2 | Predicted minimal sensitivity: V, SS. |
| | | 0.2 | 0.8 | Moderate sensitivity: V, SS, CBS. |
| | | 0.8 | 3.9 | Predicted minimal sensitivity: V, SS, CBS. |
| 44 | 16.2 | 0.0 | 13.0 | Moderate sensitivity: V, CBS. |
| | | 13.0 | 16.2 | Moderate sensitivity: C, CBS. |
| 45 | 5.7 | 0.0 | 4.6 | Predicted minimal sensitivity: V, CBS. |
| | | 4.6 | 5.3 | Major sensitivity: PM, CBS. |
| | | 5.3 | 5.7 | Predicted minimal sensitivity: V (lake bottom), SS and barren. |

## TABLE 9-10
## IMPACT ASSESSMENT/MITIGATION PLANNING CHART
## ARCHAEOLOGY RESOURCES

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 13.5 | 0.0- 2.8 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 2.8- 3.0 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 3.0- 6.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 6.5-10.6 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 10.6-13.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16.6 | 0.0- 8.2 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 8.2- 8.7 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 8.7-16.6 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 2 | 6.5 | 0.0- 0.3 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 0.3- 3.8 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 3.8- 4.6 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 (cont.) | | 4.6- 5.8 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 5.8- 6.5 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| 3 | 8.4 | 0.0- 0.2 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 0.2- 3.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 3.5- 4.1 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 4.1- 7.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 (cont.) | | 7.5- 8.4 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| 4 | 1.9 | 0.0- 1.9 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| 5a | 0.2 | 0.0- 0.2 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| 5b | 4.8 | 0.0- 2.8 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 2.8- 3.3 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 3.3- 3.6 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 5b (cont.) | | 3.6- 4.8 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 5c | 12.3 | 0.0- 1.3 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 1.3- 1.7 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 1.7- 7.3 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 7.3- 9.0 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 9.0- 9.6 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 5c (cont.) | | 9.6-10.3 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 10.3-12.3 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| 6 | 83.3 | 0.0- 0.3 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 0.3- 1.9 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 1.9- 8.1 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 8.1- 8.3 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 (cont.) | | 8.3- 9.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 9.5-12.4 | 2 | M+ | Y | Passes through area of maximum sensitivity (Clark Mountain ACEC); existing access sufficient. | - | - | - | - |
| | | 12.4-29.0 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 29.0-30.2 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 30.2-46.6 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 46.6-52.4 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 (cont.) | | 52.4-68.3 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 68.3-69.4 | 1 | M+ | Y | Passes through area of maximum sensitivity; existing access sufficient. | - | - | - | - |
| | | 69.5-74.3 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 74.3-74.8 | 1 | M+ | Y | Passes through area of maximum sensitivity; existing access sufficient. | - | - | - | - |
| | | 74.8-83.3 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| 7 | 13.5 | 0.0- 0.5 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 (cont.) | | 0.5- 2.4 | 2 | H+ | Y | Passes through area of maximum sensitivity (Clark Mountain ACEC); new access required. | - | - | - | - |
| | | 2.4- 5.8 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 5.8- 7.9 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 7.9-13.5 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| 8 | 12.9 | 0.0- 0.7 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 0.7- 1.6 | 2 | M+ | Y | Passes through area of maximum sensitivity (Clark Mountain ACEC); existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 8 (cont.) | | 1.6- 5.8 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 5.8- 8.6 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 8.6-12.9 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 9 | 25.0 | 0.0- 1.5 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| | | 1.5- 2.0 | 3 | M | Y | Passes through area of moderate sensitivity; access upgrade required. | - | - | - | - |
| | | 2.0- 2.9 | 3 | H- | - | Passes through area of moderate sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 9 (cont.) | | 2.9- 5.7 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 5.7- 6.8 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 6.8- 7.6 | 2 | H+ | Y | Passes through area of maximum sensitivity Halloran Wash ACEC); new access required. | - | - | - | - |
| | | 7.6- 8.4 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 8.4-10.6 | 3 | L+ | Y | Passes through area of predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 10.6-19.6 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access suficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 9 (cont.) | | 19.6-21.4 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 21.4-21.7 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 21.7-22.2 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 22.2-25.0 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 10 | 19.9 | 0.0- 4.3 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 4.3- 5.6 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 (cont.) | | 5.6- 7.9 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 7.9- 8.3 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 8.3- 9.0 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 9.0-19.9 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| 11 | 20.5 | 0.0- 1.8 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 1.8- 3.6 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 (cont.) | | 3.6- 5.4 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 5.4- 7.0 | 2 | L+ | Y | Passes through area of maximum sensitivity (Soda ACEC); new access required. | - | - | - | - |
| | | 7.0- 8.9 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 8.9-10.8 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 10.8-11.9 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 11.9-12.8 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 (cont.) | | 12.8-13.4 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 13.4-14.5 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 14.5-15.3 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 15.3-19.8 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 19.8-20.5 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| 12 | 4.9 | 0.0- 0.8 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 (cont.) | | 0.8- 4.9 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| 13 | 10.6 | 0.0- 0.6 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 0.6- 1.6 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 1.6- 7.0 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 7.0- 8.1 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| | | 8.1- 9.2 | 3 | M | Y | Passes through area of moderate sensitivity; access upgrade required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 13 (cont.) | | 9.2-10.3 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| | | 10.3-10.6 | 3 | H | Y | Passes through area of major sensitivity; access upgrade required. | - | - | - | - |
| 14 | 4.9 | 0.0- 3.2 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 3.2- 4.9 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| 15 | 5.0 | 0.0- 5.0 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| 16 | 8.6 | 0.0- 1.9 | 2 | H+ | Y | Passes through area of maximum sensitivity; (Cronese ACEC); access upgrade required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 16 (cont.) | | 1.9- 8.6 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| 17 | 5.3 | 0.0- 3.1 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 3.1- 4.2 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 4.2- 5.3 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| 18 | 3.7 | 0.0- 3.7 | 3 | H | Y | Passes through area of major sensitivity; access upgrade required. | - | - | - | - |
| 19 | 7.9 | 0.0- 0.6 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 19 (cont.) | | 0.6- 6.5 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 6.5- 7.9 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| 20a | 21.0 | 0.0- 0.7 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 0.7- 8.1 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 8.1- 8.5 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 8.5-10.2 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 20a (cont.) | | 10.2-11.0 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 11.0-11.7 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 11.7-14.4 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 14.4-17.0 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| | | 17.0-21.0 | 3 | M | Y | Passes through area of moderate sensitivity; access upgrade required. | - | - | - | - |
| 20b | 17.9 | 0.0- 2.7 | 3 | M | Y | Passes through area of moderate sensitivity; access upgrade required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 20b (cont.) | | 2.7- 4.8 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 4.8- 7.8 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 7.8- 9.0 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| | | 9.0-17.9 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 21a | 6.0 | 0.0- 0.5 | 1 | M+ | Y | Passes through area of maximum sensitivity; existing access sufficient. | - | - | - | - |
| | | 0.5- 4.8 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 21a (cont.) |  | 4.8- 6.0 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 21b | 8.0 | 0.0- 2.7 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
|  |  | 2.7- 5.8 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
|  |  | 5.8- 6.4 | 1 | M+ | Y | Passes through area of maximum sensitivity; existing access sufficient. | - | - | - | - |
|  |  | 6.8- 8.0 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| 22 | 21.1 | 0.0- 2.1 | 3 | H | Y | Passes through area of major sensitivity; access upgrade required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 22 (cont.) | | 2.1- 3.8 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| | | 3.8- 8.8 | 3 | H | Y | Passes through area of major sensitivity; access upgrade required. | - | - | - | - |
| | | 8.8-14.2 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| | | 14.2-21.1 | 3 | H | Y | Passes through area of major sensitivity; access upgrade required. | - | - | - | - |
| 23 | 13.8 | 0.0- 0.9 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 0.9- 4.3 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 23 (cont.) | | 4.3- 5.4 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 5.4- 6.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 6.5-11.8 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 11.8-13.8 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 24a | 27.3 | 0.0- 6.6 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 6.6- 7.0 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 24a (cont.) | | 7.0-11.5 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 11.5-11.8 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 11.8-15.5 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 15.5-21.4 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 21.4-27.3 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| 24b | 6.1 | 0.0- 0.4 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 24b (cont.) | | 0.4- 6.1 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| 25 | 11.7 | 0.0- 0.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 0.5- 2.0 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 2.0-11.7 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 26 | 0.6 | 0.0- 0.6 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 13.4 | 0.0- 2.4 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 2.4- 3.6 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 3.6-10.0 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 10.0-11.2 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| | | 11.2-12.4 | 3 | H | Y | Passes through area of major sensitivity; access upgrade required. | - | - | - | - |
| | | 12.4-13.4 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 28 | 3.2 | 0.0- 0.9 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 0.9- 3.2 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| 29 | 2.1 | 0.0- 2.1 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| 30 | 2.1 | 0.0- 0.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 0.5- 0.7 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 0.7- 1.2 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 30 (cont.) | | 1.2- 2.1 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| 31 | 5.7 | 0.0- 0.6 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 0.6- 3.1 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 3.1- 5.7 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| 32 | 16.4 | 0.0- 5.2 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 5.2- 7.5 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 32 (cont.) | | 7.5-13.4 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 13.4-16.4 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| 33 | 15.5 | 0.0- 5.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 5.5- 6.5 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 6.5- 7.0 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 7.0-11.0 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 33 (cont.) | | 11.0-13.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 13.5-15.5 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| 34 | 1.4 | 0.0- 1.4 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 35 | 4.7 | 0.0- 4.7 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 36 | 5.8 | 0.0- 1.3 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 1.3- 2.5 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 36 (cont.) | | 2.5- 4.3 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| | | 4.3- 5.2 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 5.2- 5.8 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| 37 | 7.3 | 0.0- 4.3 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 4.3- 5.7 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 5.7- 7.3 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 38 | 10.3 | 0.0- 4.6 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 4.6- 5.2 | 3 | L+ | Y | Passes through area of minimal sensitivity; new access required. | - | - | - | - |
| | | 5.2- 9.4 | 3 | L- | Y | Passes through area of minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 9.4-10.3 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| 39 | 6.2 | 0.0- 1.7 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 1.7- 2.0 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 39 (cont.) | | 2.0- 3.9 | 3 | M+ | Y | Passes through area of major sensitivity; existing access sufficient. | - | - | - | - |
| | | 3.9- 6.2 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 40a | 6.2 | 0.0- 6.2 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 40b | 4.9 | 0.0- 4.9 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 41 | 15.5 | 0.0- 2.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 41 (cont.) | | 2.5- 6.0 | 3 | L+ | Y | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 6.0-15.5 | 3 | L- | Y | Passes through area of known or predicted minimal sensitivity; existing access sufficient. | - | - | - | - |
| 42 | 21.9 | 0.0- 2.4 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 2.4-14.2 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| | | 14.2-17.0 | 3 | M | Y | Passes through area of moderate sensitivity; access upgrade required. | - | - | - | - |
| | | 17.0-17.4 | 3 | H | Y | Passes through area of major sensitivity; access upgrade required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 42 (cont.) | | 17.4-17.7 | 3 | M | Y | Passes through area of moderate sensitivity; access upgrade required. | - | - | - | - |
| | | 17.7-21.9 | 3 | L | Y | Passes through area of known or predicted minimal sensitivity; access upgrade required. | - | - | - | - |
| 43 | 3.9 | 0.0- 0.2 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 0.2- 0.8 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 0.8- 3.9 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| 44 | 16.2 | 0.0- 3.4 | 3 | M | Y | Passes through area of moderate sensitivity; access upgrade required. | - | - | - | - |

Table 9-10 (continued)
Impact Assessment/Mitigation Planning Chart: Archaeology Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 44 (cont.) | | 3.4-16.2 | 3 | H- | Y | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| 45 | 5.7 | 0.0- 4.6 | 3 | L+ | Y | Passes through area of known or predicted minimal sensitivity; new access required. | - | - | - | - |
| | | 4.6- 5.3 | 3 | H+ | Y | Passes through area of major sensitivity; new access required. | - | - | - | - |
| | | 5.3- 5.7 | 3 | L+ | Y | Passes through area of predicted minimal sensitivity; new access required. | - | - | - | - |

# APPENDIX A

# APPENDIX A
# AN ARCHAEOLOGICAL ASSESSMENT OF LINKS 44 AND 45

## Introduction

Subsequent to the submittal of the draft archaeological technical report for the Mead/McCullough-Victorville/Adelanto Project, two additional links were identified as alternatives: Links 44 and 45. Since the sensitivity analysis was based on data from Links 0 through 43, the addition of Links 44 and 45 was seen as an opportunity to independently evaluate the sensitivity predictions. The appendix provides such an evaluation. In order to maintain logical independence, data from Links 44 and 45 have not been inserted into Tables 9-2 through 9-8. Table 9-10 has been updated, however, to include Links 44 and 45. This is to assure completeness of the impact assessment and does not interfere with the scientific "independence" of the evaluation of the sensitivity predictions.

## Methods

The methods employed in the archaeological assessment of Links 44 and 45 are the same as those used in the analysis of Links 0 through 43.

### Record Search

A record search was conducted for those new areas outside the original mile-wide study corridors. In California the archaeological clearinghouse at the University of California, Riverside, now the curation facility for San Bernardino County site records, was contacted. The original record search obtained from the Museum of Natural History at the University of Nevada, Las Vegas, was sufficient, since it initially covered a larger area. The National Register of Historic Places and archaeological areas identified in the CDCA Plan were also reviewed.

### Survey

Sampling was based on the original strategy of bringing the survey of each link to the 20 percent level. Due to previous survey coverage in the vicinity of Link 45, no fieldwork was conducted. For Link 44, the sample was stratified by environmental zone prior to random selection of transects. One transect from the valley/mountain contact zone and three transects from the valley zone were selected using a random numbers table.

The field portion of the cultural resources survey was conducted on March 19 and 20, 1985. The survey covered four randomly selected transects along Link 44. Each sample transect was one mile long and one-eighth mile wide.

One crew of four persons participated in the survey. Survey coverage and recordation procedures were the same as employed in the previous fieldwork.

### Sensitivity

As discussed in the original assessment report, the sensitivity analysis focused on three environmental variables.

1. Environmental zones which were defined on the basis of topography and hydrology. Our expectation was that the spring, Mojave River, playa margin, and valley/mountain contact zones would have relatively high site densities, while the valley and mountain zones would have relatively low or moderate site densities.
2. Vegetation as determined during the biological resources component of the environmental studies for the Mead/McCullough-Victorville/Adelanto transmission line. It was expected that the Riparian, DW, JTW, and Pinyon/Juniper vegetation communities would have relatively high site densities, while the CBS community would have relatively low and moderate site densities.
3. Surficial geology as determined during the geotechnical investigations of the Mead/McCullough-Victorville/Adelanto transmission line since many of the larger known sites are found at sources of knappable stone.

## Results

### Record Search

The record search revealed very little survey along Links 44 and 45 (Table A-1). Considerable work has been done west of Link 45; however, only one large survey had been conducted in the vicinity of Link 44.

A total of six previously recorded archaeological sites were identified in the one-mile-wide corridors (Table A-2). One of these sites is historic.

### Survey

Four mile-long transects were surveyed (Table A-3). Within the survey transects only the CBS vegetation community was represented. Of the six environmental zones potentially present, only the valley/mountain contact and valley zones were found in the survey area. Two previously unrecorded sites and three isolates were located in the survey transects.

## SBr-5430 (Lk 44-Tr 15-2)

The site consists of a lithic scatter/quarry on a small knoll. The site is located in an east-west trending valley in the northern portion of the Calico Mountains and is in the CBS plant community. Seasonal drainages are located immediately north and south of the site. The site covers an area of 45 meters by 50 meters. The scatter of cultural debris is relatively restricted, occurring mostly in association with the jasper outcrops on the knoll. Approximately 50 flakes, predominantly jasper, were noted along with four cores and two biface fragments.

## Lk 44-Tr 7-3 (Historic Site - The regional Information Center did not issue a permanent site number)

This site is a historic mining area on a low finger ridge north of the Calico Mountains. The area contains granitic bedrock and quartz. Three small drainages dissect the site. Five excavated pits, one pit/tunnel, and the remnants of a possible structure comprise the site features. The site covers an area approximately 65 meters by 50 meters. In addition to the features, there is scattered historic debris in the northern portion of the site. This material includes broken glass, ceramics, nails, wood, and box springs. The historic debris appears to date to the 1940s or 1950s.

## Isolates

The isolates consist of a chalcedony flake, two quartz flakes and a core, and the base from a "push up" bottle. The quartz artifacts may be historic since gold mining has occurred in the area and a modern prospector's quartz scatter was noted within the transect. Mining cairns and isolated test pits were noted but not recorded.

## Summary

One prehistoric site in four linear miles of survey equals 0.25 site per mile. This is higher than the 0.13 site per mile recorded from the initial survey (23 transects). It is, however, lower than the 0.65 site per mile generated from the record search data along links which have been intensively surveyed.

Comparing the new links (44 and 45) with the old ones that they would replace (Links 20a and 5b), we find that, all things considered, the old links have lower impact potentials. While Link 44 would avoid the highly sensitive playa margin around Coyote Lake, site density in the Calico Mountains appears to be higher than in Coyote Lake Basin. Moreover, Link 44 would require more access improvements, increasing the potential for both direct and indirect impacts. Comparing Link 45 with Link 5b, we find that Link 45 has a higher impact potential because of increased access requirements in the playa margin around Ivanhoe Lake.

Although this sample is small, the survey results tend to confirm the original prediction that valley zones would have lower site densities while valley/mountain contact zones (particularly if quarriable lithics were present) would have higher site densities.

## TABLE A-1
## SURVEY INTENSITY

| Link No. | Total Link Miles | Previous Survey on or Parallel Proposed Link (mi) | Victorville McCullough Survey (mi) | Total Survey (mi) | Total Survey (%) |
|---|---|---|---|---|---|
| 44 | 16.2 | 0.5 | 4.0 | 4.0 | 25.0 |
| 45 | 5.7 | 0.0* | 0.0 | 0.0 | 0.0 |

---

*Crossed by two previous surveys.

## TABLE A-2
## PREVIOUSLY RECORDED ARCHAEOLOGICAL RESOURCES

| Site No. | Site Type | Official Status[1] | Year Recorded | Environmental Zone | Link |
|---|---|---|---|---|---|
| SBr 2130 A and B | Lithic Scatter | N | 1956 | V | 44 |
| SBr 3431 | Lithic Scatter | N | 1978 | V | 44 |
| SBr 4525-H | Irwin Road | N | 1981 | C | 44 |
| SBr 4526 | Core | N | 1981 | C | 44 |
| SBr 4527 | Lithic Scatter | N | 1981 | C | 44 |
| SBr 4188 | Quarry | N | 1981 | C | 44 |

---

[1] N = No official status.

# TABLE A-3
# TRANSECT SUMMARY

| Link | Transect | Sites Recorded | Isolates | Environmental Zones |
|---|---|---|---|---|
| 44 | 7 | 1 | 1 | V |
| | 8 | 0 | 2 | V |
| | 13 | 0 | 0 | V |
| | 15 | 1 | 0 | C |
| Total | | 2 | 3 | |

---

Key:

V = Valley
C = Mountain/Valley Contact

# CHAPTER 10
# HISTORY

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# CHAPTER 10
# HISTORY

## INTRODUCTION

The historical overview and historic site inventory of the Mead/McCullough-Victorville/Adelanto transmission line consisted of the preparation of an overview of the study area, an inventory of historic resources and a preliminary sensitivity analysis of inventoried resources. The overview of the history of the study area is followed by a discussion of study methodology, inventory results, sensitivity analysis and impact assessment.

## STUDY AREA OVERVIEW

### Introduction

From the days of the first Spanish explorers during the last quarter of the eighteenth century, to the present and this particular transmission line, the main theme in the history of the project area has been transportation. This is natural, given distances between water and the generally difficult environmental conditions in the region. Viewed from another angle, the major story in the project area's history is the constant--although gradual--process of linking this remote and harsh desert region with the outside world. Transportation routes--trails, roads, and railroad lines--together with necessary support facilities such as wells, railroad stations and supply depots, make up by far the largest number of historic sites within the project area.

The secondary theme in the history of the region is mining. The geologically complex groups of rocks lying in or immediately adjacent to the project area hold a variety of valuable minerals, the exploitation of which sometimes dates back to prehistoric times. Major mining efforts began only in the late 1860s, however, following the usual boom-and-bust pattern characteristic of mining throughout the western United States. The minerals from these mines were exported across the desert most often by railroad, but also by wagon, traction engine, and motor vehicle, to the major metropolitan centers of processing, fabrication and ultimate consumption. Several towns and railroad stations in the project area and larger region had their origins as shipping and supply points for these local mines. A few cemeteries in the project area relate to the existence of these towns.

Finally, there are a small number of cultural remains in the project area representative of varied themes in its history--an early military fort, a few ranches and other agricultural sites. This, then, is an historical overview of a sparsely populated desert region oriented to and dependent upon the outside world.

## Exploration and Struggles for Power 1776-1871

During the first century of its history, the project area was mainly a transportation route, playing host to a wide variety of peoples and cultures--Native Americans, Spanish missionaries, Mexicans, mountain men, United States Army soldiers, Mormon traders and prospectors/miners from many backgrounds. Despite the harshness of the natural environment, all of these varied types of people wanted to control or use the project area for one reason or another, leading to a series of struggles for power over the region. These struggles were ongoing in various forms from the first contact between the Spanish missionaries in 1776 until the treaty of peace between the Paiute Indians and American soldiers in 1870.

### The Spanish Era 1776-1821

Struggles for economic, social and political power make up one of the central themes of human history. The outcome of such conflicts determines how societies are to be organized and how the resources available in specific environments are to be utilized and distributed. At a more basic level, such struggles decide which peoples and cultures will survive and maintain their lifeways, and which will be driven out or destroyed.

The struggle for control over the future of the project area began mildly enough. Francisco Garces, a Spanish frontier missionary led by Sebastian, an Indian guide, explored parts of the project area in 1776. His goal--and that of the larger society which he represented--was to locate the best route for travel between Mexico, New Mexico and California, to search the area for suitable mission sites, and acquaint himself with the local Indian populations. Such expeditions were, of course, often the initial step toward the conquest of the region. Garces' exact route across the desert (he travelled from the Colorado River to the California coast) and campsites are not known, but it is probable that it took him approximately along the route later followed by the Union Pacific Railroad to the Camp Cady area, then to the Barstow region, Forks-of-the-Road, and westward out of the project area (Weinman-Roberts 1980:115-118). Garces' experiences in the desert--his group often ran low on food--did not recommend settlement or other use of the area. The region along the Colorado River lying outside the project area to the south, however, was briefly settled. The exploitation practices of the Spanish settlers and colonists soon turned the friendly local Indians into enemies, and in 1781 the Spanish settlements on the Colorado were completely wiped out. This ended the encroachment of Euro-Americans into the project area for the next 26 years (Bean et al. 1979:4-3; Weinman-Roberts 1980:118-119).

During the first few decades of the nineteenth century, there was open warfare between the Indians and Spanish along the fringes of the Mojave Desert. A large number of raids by both sides--the Indians to steal grazing animals and the Spanish to punish the Indians, capture natives for the Mission system, and even to search for new Mission locations--took place (Casebier 1981:284; Weinman-Roberts 1980:119).

## The Mexicans, Indians, and Anglo-Americans 1821-1848

A few years after California became a province of Mexico in 1821-1822, the arrival of Anglo-American explorers in the region turned the struggle for power into a three-way affair. The newly arrived Americans were the balance wheel in this struggle. Sometimes they sided with the Indians against the Mexicans and other times with the Mexicans in common cause against the Indians. By the mid-1840s, however, the American desire to possess California resulted in a full scale war between the Mexicans and Americans.

The arrival of American fur trapper and trail-blazer Jedediah Strong Smith in the project area and vicinity in late 1826 marked the beginning of this phase. Smith was a fur trapper interested in the trapping possibilities of the far west. He travelled to California via the Colorado River, crossing the desert led by Indians who were runaways from the missions. He saw Soda Lake and called the Mojave River the "Inconstant" due to the fact that it so often ran beneath the surface (Bean et al. 1979:4-5; Weinman-Roberts 1980:122).

Smith was only the first of a number of fur-trapping mountain men to visit the area during the late 1820s. Ewing Young, James O. Pattie, Peter Skene Ogden and Kit Carson also travelled through the general area, as did Smith on a second trip in 1827. These trappers were a rough and sometimes ruthless group who were often close to being outlaws. Thus it was natural that they would clash with the Mojave Indians living along the Colorado River south of the project area. Each side took serious losses in men killed in these battles. The hostilities were widely publicized and had the effect of pushing travel northward, since the Mojaves became known as a fierce and hostile group. The so-called "Old Spanish Trail", a trade route in use from 1830 to 1848, crossed or paralleled the project area in a number of places rather than running further to the south (Bean et al. 1979:4-7; Weinman-Roberts 1980:123-124). Annual caravans of pack animals traversed the Mojave Desert on the way between Santa Fe and Los Angeles during these years. They carried woolen products from Santa Fe, returning with horses and mules from California. While there were numerous variations, short cuts and so on, there were two main routes on the Spanish Trail, one going through the Mojave villages near Needles, the other going further north to avoid the Mojave Indians. Both routes crossed sections of the project area, and three major stops were within or very close to the project area (Bean et al. 1979:4-8; von Till Warren and Roske 1981:21; Weinman-Roberts 1980:123-124). These included Lane's, located between Lower Narrows and the site of today's Oro Grande, Forks-of-the-Road and Camp Cady.

Captain J.H. Lane homesteaded a tract of bottom land along the Mojave River just north of the Lower Narrows about 1852. This was a "station" or supply post for overland travels, and later a stage stop. The Turner Springs Ranch later developed at or near the site of Lane's (Belden 1963a; Weinman-Roberts 1980:181). These sites are near Link 32 of the project alternative corridors.

A second major stopping place was Forks-of-the-Road, where the trail crossed the Mojave River. One branch, the Old Government Road, headed east (and soon out of the project area) and the other, the "Old Spanish Trail"--also known as the Santa Fe, Mormon or Salt Lake Trail--headed north. This place, located a few miles east of Yermo on the north bank of the Mojave River later became the site of Hawley's Station. Hawley's was reportedly established in 1863, but the place had been a stopping point since prehistoric times. In October 1965 the bones of an Indian or Mexican man and his horse were found near Forks-of-the-Road. The association and material remains found with the body indicate death during the 1830s or 1840s. The find was on the J.D. Mitchell ranch where an old building called the "Mormon Shack" still stands (Desert Dispatch May 3, 1972:12; California State Mineralogist 1888:500). Forks-of-the-Road/Hawley's is near Link 23. Finally, the Camp Cady area, located about 10 miles east of Forks-of-the-Road, was another early stopping place (see below).

The growing market for horses and mules in New Mexico, Texas, Wyoming and Colorado was only partially met by the formal trade between Santa Fe and California. Yet there were vast numbers of horses and mules on the ranches of coastal California. At the same time, the Native Americans in the Mojave Desert--as well as other California Indians of this period, such as the Miwok and Yokuts in the central valley--had a raiding tradition against settlements lying nearer the coast (Beck and Haase 1974:23; Weinman-Roberts 1980:125). These guerrilla-type actions were mainly to steal horses and drive them east for food. Such small scale raids were common in the 1830s and 1840s, but the really spectacular, large scale ones were organized by American mountain men and carried out by these men and Indians for large scale profit. The largest and best known raids were led by American mountain man, Thomas L. "Peg-Leg" Smith, together with a group of Ute Indians living near St. George, Utah. Their most famous raid took place in 1839-40 when Chief Walkara and about 150 of his Utes joined Smith and several other mountain men, including Jim Bridger and Jim Beckwourth, to cross the Mojave Desert and attack the San Bernardino ranches. Their booty included between 3,000 and 5,000 (accounts vary) of the Mexican Californians' best horses and mules. Violence was inevitable in these raids, and various numbers of people were killed. The existence of the Mojave River played a key role in these events, especially around the Camp Cady area, because it offered both water and the grazing areas needed before pushing east. Descendants of stray animals from these raids still existed in the Victorville area as late as 1948 (Bean et al. 1979:4-9; Weinman-Roberts 1980:125-126).

The attacks led by the American mountain men on Mexican California settlements concretely illustrated the growing hostility between Mexico and the United States over the future of California. The mountain men/trappers were in one sense representatives of a nation which largely believed in the imperialist doctrine of Manifest Destiny. It was considered inevitable and just for the United States to expand westward across the North American continent. Those who stood in the way--Indians, Mexicans and Canadians--should yield or be swept aside by the more powerful and dynamic nation. During the mid-1840s this doctrine was strongly held with James K. Polk, one of its leading exponents, in the White House. Polk wanted California, and this fact was the ultimate cause of the Mexican-American War of 1846-1848. One textbook on United States diplomatic history expresses this as follows:

> The real and overriding objective can be stated in a word: California. While Polk had publicly proclaimed his expansionist designs on Oregon and Texas, his privately affirmed and most valued goal was California. Only California was worth the price of a war; all other reasons were ultimately demeaning. California, with its ports of San Francisco, Monterey, and San Diego, offered America better "windows" to Pacific trade than Oregon. California with its vast and inviting valleys, offered far greater potential value than Oregon (Gardner, La Feber and McCormick 1973:151).

Various techniques were used during the 1841-1846 period in the attempt to gain California by means short of war. Attempts at purchase were made, together with obvious threats and occasional invasion by American military forces. Forays into the project area included the "explorations" of John C. Fremont, an United States Army Captain and the son-in-law of influential Senator Thomas Hart Benton. Fremont--while under orders which were sometimes informal and verbal -- went on armed "scientific" expeditions with as many as 60 soldiers around Mexican California during the years 1844-1846. Fremont's actions during his travel raised questions about his scientific purposes, especially since he dragged a howitzer with him, established fortified camps on peaks while refusing Mexican orders to depart, and in 1846 (even before word had arrived that the Mexican-American War had begun) helped organize the Bear Flag Revolt of the American settlers in California (Caughey 1953:230-231).

Fremont's travels during 1844 took him to the Mojave River (which name he gave it), near Oro Grande, following the river down to the Camp Cady region. He had camps near Oro Grande, Helendale, Barstow, and the Fish Ponds--Forks-of-the-Road--Camp Cady area (Bean et al. 1979:4-9; Casebier 1981:288; Weinman-Roberts 1980:124). Fremont was later involved in the Mexican-American War, which by early 1848 had resulted in an American victory with the Treaty of Guadalupe Hidalgo. In February 1848 the United States held formal title to all of California and the remainder of Mexico's northernmost provinces. With the Mexican-Californians defeated, only the Indian populations were left to contest for control over the project area; the final phase of a long struggle was ready to begin.

## Mormons, Railroad Surveyors, Immigrants, Indians and Soldiers 1848-1871

The next two decades in the project area's history were marked by greatly increased traffic over the trade and travel routes established during the previous three quarters of a century. This increased use of the region caused the Indians of the area to violently react to the incursion into and use of the land and resources they needed to survive. Their attacks on immigrants resulted in the establishment of several military posts in the desert, one of which--Camp Cady--was within or very close to the project area.

John Marshall's discovery of gold at Coloma and the Treaty of Guadalupe Hidalgo annexing California to the United States came within one month of each other in early 1848. These two events combined to encourage immigration into California. Most of this wave took routes other than through the Mojave Desert, but one road to California was from Salt Lake City to the San Bernardino area. The pioneers of this route were Mormons, and the connection between Utah and the San Bernardino Valley led to the colonization of the latter area by Mormons. The trail between the two places had become a wagon road by 1849 when a Mormon, Jefferson Hunt, led a 106-wagon train across the desert. Hunt later led a larger train over the same route, this one consisting of 150 wagons and 520 persons (Weinman-Roberts 1980:129).

The Mormons had a large plan in mind when settling San Bernardino. This was the proposed Mormon state of Deseret, which included parts of the project area, as a connecting corridor between Utah and Southern California. Part of the plan was to occupy and develop both the corridor and the San Bernardino Valley. At least one supply depot, called the "Mormon Grocery" or "Old Grocery" was apparently related to this effort. It was located near either the Fish Ponds (near today's Daggett) or more likely close to Forks-of-the-Road near Camp Cady during the 1860s (von Till Warren and Roske 1981:26). While the state of Deseret never came to fruition, Mormon influence was important in the development of the area.

Several transcontinental railroad surveys undertaken by the United States government during the 1853-1857 period brought men like Edward F. Beale, Robert S. Williamson and Amiel Weeks Whipple into the Mojave Desert. Beale and Whipple are both reported to have camped at the future location of Camp Cady, near Forks-in-the-Road (Weinman-Roberts 1980:135; Hall et al. 1981:32). Beale was also in charge of implementing Secretary of War Jefferson Davis' plan to use camels as beasts of burden on the American deserts. Beale later reported that the camels did well, but their use did not continue (Bean et al. 1979:4-15; Weinman-Roberts 1980:130-135).

During the late 1850s freight wagon and immigrant traffic along the Los Angeles to Salt Lake City route grew considerably. In 1858 the Indians reportedly increased their attacks upon those who went through their lands. Getting the mail through the desert was also a problem. The Americans responded with the establishment of military forts in the area, first along the Colorado River to control the Mojave Indians and, beginning in 1860, at Camp Cady nine or ten miles down river from Forks-in-the-Road, and at Soda Lake near Baker (Beck and Haase 1974:54; von Till Warren and Roske 1981:II-54-II-56; Weinman-Roberts 1980:137, 177). Major James H. Carleton, Company K of the First Dragoons, established Camp Cady in early 1860. It was located in one of the few places along the Mojave River where the water flows on the surface all year around and was near the Salt Lake and Mojave roads.

Camp Cady was initially a temporary fort to be used until the Indians were suppressed. Adobe and brush huts were constructed to serve as a base from which Carleton's soldiers could operate. In July 1860, Carleton and his men withdrew after conducting a peace conference with the Paiutes at the soldiers' camp. Camp Cady continued to be occasionally used, however, as a stopping point for the military when crossing the desert to Fort Mojave (Casebier 1981:298; Weinman-Roberts 1980:177-179).

The withdrawal of regular soldiers to the East during the Civil War years (1861-1865) kept Camp Cady unoccupied even though the local Indians had not been defeated. Once the Civil War was all but over in April 1865, however, regular army troops were again stationed at the fort. These soldiers were mostly infantry during 1865 and 1866, with a few horses for desert scouting. One Captain West was in charge of Camp Cady during these years, and his Company C, Fourth Infantry reportedly built 35 small adobe houses by early 1866. In March 1866 the camp was again abandoned, but was soon reoccupied due to continued Indian attacks. Soldiers then remained at the site through 1867. It was during this period of occupation, in July 1866, that there was reportedly a Paiute attack on Camp Cady (Hall et al. 1981:39-40). The location of the camp was moved one-half mile west in 1868, where enlisted men were put to work building structures which--in contrast to the old camp--had floors (apparently of wood) and shingled roofs. Corrals of sheep and cattle provided fresh meat, and a cookhouse with a large oven was built, but the number of soldiers lessened as the number of Indians in the area dwindled. In 1870 the Indians and soldiers negotiated a peace treaty, and in 1871 Camp Cady was completely abandoned. The property was sold that same year to two local stockmen named Cartwell and Winters. The area continued to be used as a ranch for decades afterward, probably well into the twentieth century (Weinman-Roberts 1980:179). The Camp Cady area lies about one mile south of Link 22.

That stockmen could contemplate running a ranch at Camp Cady in 1871 is strong evidence that the long struggle for power in the project area was at last over. The Anglo-Americans had emerged victorious and were already putting the stamp of their culture on the region. An important aspect of this culture was technologically intensive mining, the all-out search for precious metals. This search marked the next phase of the history of the project area.

### Early Mining in the Project Area 1868-1880s

The early pioneers in the project area had created a primitive road and trail system and suppressed the various threats to the free use of the region's resources by American citizens. This opened up a vast desert area and allowed those who entered the area to prospect and mine during the 1860s, 1870s and 1880s. The area was still quite isolated from the outside world, however, and transportation costs in these pre-railroad times were extremely high. Therefore the early miners focused on materials whose value was high relative to weight, i.e., gold and silver. After the gradual arrival of two railroads and several branch lines during the period following 1882, other minerals could also be mined with profit. The following discussion on mining in the project area is divided into these two distinct eras.

## Clark Mountain District

The geography and geology of the project area is complex and boldly displayed. Desert travelers are familiar with the lack of flowing water, dry lake beds, broad valleys, and continuous series of isolated mountain ranges, buttes, and hills. The geologic history of the area has resulted in extensive mineral deposits. The first mining district to be organized was the Clark Mountain District in the eastern part of the project area near the California-Nevada border. This district would prove to be the most important one in the project area.

By the mid-1860s miners had organized the Clark Mountain District (Hewett 1956:6). The ore was mostly silver, with some copper and gold. Most of the mines were found on the east and north slope of Clark Mountain, although the Copper World mine was found on the south slope. By 1871 the mines of this California district and the adjacent Yellow Pine District of Nevada were reported on by the well-known mining expert, Rossiter W. Raymond. He pointed out that there were about 40 miners living in the Clark District and that, while development work was ongoing, little had been done to that date (Raymond 1871:14).

Despite its isolation, the population of the area grew to a point where it could boast a town called Ivanpah (population between 100 and 200 in the early 1880s), including two mills, a post office, a weekly newspaper, a stable, and several stores and saloons. Ivanpah, meaning "good water" in Southern Paiute, declined during the second half of the 1880s and died in the 1890s (Gudde 1969:154; Hensher 1979:5-6). The Ivanpah townsite and all the early mines of this era lie one mile or more north of Link 5c as it passes along the south slope of Clark Mountain. Ivanpah is the oldest mining camp townsite in the entire eastern Mojave Desert and during the 1870s it was the only community of any size in this vast area (Casebier 1981:304).

## Oro Grande District

The second mining district to be organized in the project area vicinity was the gold district of Oro Grande--also known as the Silver Mountain--in 1878. This was the second major gold discovery on the Mojave Desert, the first being at Salt Spring near the southern end of Death Valley (Belden 1963; Gudde 1975:256). Early mining here was in the gold-quartz veins east and northeast of the townsite on the Mojave River. During the 1880s the place was quite active, with a post office and at least one 20-stamp mill operating in Halleck, as today's Oro Grande was then called. During that decade Halleck--named for the chemist at the first small stamp mill--had several stores, hotels, a weekly newspaper, and a railway depot. Over the years, the place gradually became known as Oro Grande after the mine by that name. This mine--once owned by the oil tycoon, Edward L. Doheny--was located near the top of Quartzite Mountain about 3/4 of a mile north of Link 32 (Belden 1960:139; Gudde 1975:256). A little over a mile west of the Oro Grande mine were at least two shafts owned by the Copper Mountain Mining Company of Los

Angeles. These were operated prior to 1902. At least one of these shafts is within the project area north of Link 32 (California State Mining Bureau 1902:11).

## Calico District

The development of the Calico District, south of Link 44 and north of today's Yermo and Daggett, during the 1880s affected the project area in important ways. The district was discovered in 1879 when veins of silver ore were discovered. Extremely rich ore was found in 1881. The mines then boomed during the 1881-1896 period as silver worth many millions of dollars was extracted. The first ore was shipped to Halleck (Oro Grande) for processing, but the mill there was so inefficient that half the values were lost. So the Calico owners purchased the mill, and transferred it to the new mining camp, enlarging and improving it to make it more efficient (Belden 1963a; Hewett et al. 1936:47; Wright et al. 1953:126-127). Boom times in Calico were reported on as described in a 1953 issue of the California Journal of Mines and Geology:

> Following the bonanza operations of the first few years, mining activity was strongly influenced by fluctuations in the price of silver. In the period 1883-85 San Bernardino County yielded nearly 6 million dollars in silver, about 85 percent of the state's total, and obtained mostly from the Calico district. In 1890, at the peak of activity, mills totalling 150 stamps were treating the ores and about 700 men were employed in the mines and mills. The monthly output of bullion was valued at about $200,000. By 1892, however, diminishing production forced the closing of two mills, one with 60 stamps, the other with 15 stamps, both at Daggett. A 30 stamp mill owned by the Silver King Mining Company remained in operation at Calico until 1896.
>
> The drop in the price of silver from $1.13 per ounce in 1894 to 57 cents in 1896, together with the exhaustion of the known high-grade bodies, led to virtual cessation of mining. Several factors, including the richness of the ores, the belief that the bodies were shallow, and the unrestricted activities of lessees, led to improper mining practices at many of the properties. The leasing was of the type commonly known as "Chloriding" in which only high-grade ores are sought and methods are unsystematic. Ore mined by lessees was treated at a custom mill, the claim owner receiving one-sixth to one-fourth of the return (Wright et al. 1953:127).

The development of Calico, with its relatively large population and the stores, hotel, post office and newspaper they supported, stimulated the entire surrounding region. Daggett was established as a supply center on the railroad being pushed through the Mojave River plain below the town, and Hawley's Mill was established on the Mojave River within or very close to Link 23. Agriculture in the area, ranching in particular, was undoubtedly also stimulated by the rise of Calico. In 1888 the California State Mineralogist

(1888:496-497) published the following report on the Cuba Silver Mine and the Hawley Mill which supplied its ore:

## Cuba Silver Mine

This mine is located in the East Calico Mining District, three miles east of the town of Calico, is of a "pockety" character, with no regular vein. The claim is one thousand five hundred by six hundred feet, and is worked through two tunnels; one three hundred feet long, and one fifty feet long. The company has constructed five miles of wagon road for the transportation of ore to the mill and supplies to the mine. The ore is carried in wagons at a cost of $2 per ton; it consists of porphyry, heavy spar, and horn silver, consequently it is free milling. It is worked in the Hawley Mill by wet crushing and pan amalgamation, with Rae's electric attachment to the settlers. The mine employs eight men at $3.50 per day.

## Hawley Mill

This mill, which is situated on the Mojave River, eight miles east of Calico, is working free milling ores from the Cuba Mine. It is driven by steam engine of sixty-horse power, burning three tons of coal per day, at $11 per ton, brought from Gallup, New Mexico. This mill has ten stamps of seven hundred pounds each, six and one half to eight inches drop, and from ninety to ninety-six drops per minute. Twenty-five tons of ore are crushed daily, through wire screens of twenty or thirty or forty meshes to the linear inch, and a little inclined. One battery has shoes and dies of cast-iron, the other of steel. No accurate records have been kept as to the wear of shoes and dies, but it is stated that iron lasts about three months, and steel "never wears out," owing to the softness of the rock crushed. The pulp from the batteries is received in settling tanks, in which the greater portion is deposited, to be shovelled and charged in the pans as required.

The muddy overflow from the settling tanks passes to outside reservoirs, where the "slum" is deposited, and, when dry, is wheeled to an elevator, from which it falls into the settling tanks, and is worked with the sands. No rock breaker is used. The two feeders are of the Hendy style. There are two Horn pans, and two of another style, with wooden sides; also two settlers. The wear of the pans, shoes, and dies is "very small." The chemicals used with the ore are bluestone, salt, lye, and alum. The bluestone and salt are used in the pans, the lye and alum in the settlers, proportions are not given. The water and tailings from the settlers are elevated by means of a "Chinese pump," in order to obtain the requisite fall. The loss of quicksilver is not known now; it was formerly three fourths of a pound per ton of ore worked. The results obtained are from 90 to 97 percent of the assay value of the ore. The mill employs eleven men, at wages from $3.50 to $4 per day. The settlers are furnished with the Rae electric attachment, concerning the advantages of which there is here a difference of opinion. The machine cost $1,200, and makes six hundred revolutions per minute.

| | |
|---|---|
| Altitude at mill | 1,818 feet |
| Number of stamps | 10 |
| Weight of stamps | 700 pounds |
| Drop of stamps | 6½ to 8 inches |
| Drops of stamps | 90 to 96 per minute |
| Duty of stamp | 2½ tons in twenty-four hours |
| Kind of shoes and dies in battery | Iron and steel |
| Kind of screens | Wire, Nos. 20, 30, and 40 |
| Dimensions of screens | 34 by 9 inches |
| Kind and number of feeders | Hendy, 2 |
| Kind and number of pans | Horn, 2, and common, 2 |
| Number of settlers | 2 |
| Percentage of assay value saved | 90 to 97 |
| Loss of quicksilver per ton | 3/4 pound |
| Kind and quantity of chemicals used | Bluestone, salt, lye, alum; quantities not given |
| Number of men employed | 11 |
| Wages paid | $3.50 to $4 per day |
| Horse power of steam engine | 60 |
| Kind and quantities of coal used per twenty-four hours | Gallup, New Mexico, 3 tons |
| Cost of coal | $11 per ton |
| Cost of water | Free, from Mojave River |

### Alvord Mountain Mining District

The last district to be developed during the pre-railroad era was the Alvord Mountain District, named for Charles Alvord, an early prospector. Alvord reportedly found a ledge with wire gold somewhere in the Mojave Desert during the early 1860s, but he was murdered and the discovery was never relocated (Gudde 1975:17). In the early 1880s a hard rock gold mine was located in the Alvord Mountains and so was named the Alvord Mine. This mine, although located about two miles north of Link 20a and about the same distance northwest of the intersection of Links 6, 19, 20a and 21a, processed its ore on the Mojave River in the Camp Cady area about nine miles south of the mine, where a 5-stamp mill was in operation by 1888 (California State Mineralogist 1888:499). The ore was hauled across two of the project corridors which run between the mine and the mill site. This mill, at Camp Cady, reportedly burned in September 1891 (Storm 1893:359-360). The mine also saw off-and-on development during the first half of this century. For example, during the 1906-1910 period the Alvord Gold Mining Company of San Diego installed a 6-Nisson stamp mill. In 1943 this mill was reportedly still on the property, along with a compressor driven by a gas engine, a block type rock crusher, amalgamation plates and cyanide tanks. A 500-foot well, located 1½ miles southwest of the mine, had also been developed by that point (California State Mineralogist 1943:438-439).

## The Coming of the Railroads and Later Mining 1880s-1930s

The 1888 report of the California State Mineralogist discussed the importance of the first railroad (built by the Southern Pacific but soon sold to the Atchison, Topeka and Santa Fe) to the Mojave Desert and the project area in the following terms:

> Owing to their remoteness, the cost of transportation, and otherwise adverse conditions, mining made so little headway in these districts that they came, in the course of a few years, to be about deserted. Since the construction of a railroad across the Mojave Desert, rendering the mines more accessible and greatly reducing the cost of transportation, mining operations have undergone some revival in these districts, with the prospect of becoming still more active in the early future (California State Mineralogist 1888:491).

Such is often the case when a fast and relatively inexpensive mode of transportation arrives in a previously isolated region. The life of the area is revolutionized as new and important towns are established at major stations and points where goods are transferred for shipment to nearby mines and other productive centers. The region's structure of economic and political power is revolutionized as a new element--the local railroad elite in this case--is injected into the body politic. New place names--Barstow, Victor, Baker, Daggett--spring up, often named for this local elite or the railroad owners and top executives operating out of distant urban power centers. Mines, quarries and types of production previously impossible to develop due to high transportation costs suddenly become feasible. Good transportation routes are thus an important thread in the fabric of the cultural landscape. The presence or absence of good transportation routes along with the stage of technological evolution has a key effect on the pattern of an area's cultural development. Good transportation tends to facilitate economic specialization and a division of labor based on the natural advantage of particular environments and resource bases. In other words, if a particular area has good connections with the outside world, it can more easily import materials to satisfy certain of its needs and pay for them through exports. This allows a region to focus on the types of production most suited to its own climate, geography, resources and people, but at the same time requires the region to yield some of the control of its own economic destiny to outside forces. Therefore, good transportation heightens the role of markets, both improving the marketing possibilities of local production and opening up local markets to outside influence, or even domination.

## The Arrival of the Southern Pacific Railroad, 1880s

In the California of the 1870s and 1880s and even in subsequent decades, the Southern Pacific Railway Corporation was a supreme power in California and much of the west. Although late twentieth-century California has a large number of powerful corporations, in nineteenth-century California there was essentially one - the Southern Pacific. As one leading California historian put it:

> All other enterprises were so overshadowed by the railroad as to be reduced to the stature of small business. The railroad was the biggest landowner and biggest employer of labor, its owners were the richest men in the state, its influence on government was supreme, and by arbitrary manipulation of freight rates it could make or break almost any merchant, industrialist or agriculturist in the state (Caughey 1953:381).

A main source of the Southern Pacific's power was the government land grants and cash subsidies the railroad received by building tracks. Therefore it had a great incentive for construction. As part of a planned extension to El Paso, Texas, the Southern Pacific began surveys for its route from California eastward across the Mojave Desert in the mid 1870s. This survey began at Camp Cady and went east to Soda Lake, Las Vegas and beyond (Southern Pacific Railroad Company 1877:74). During the early 1880s, the Southern Pacific constructed its line through part of the project area. Initial construction came in from the west building from the town of Mojave to Barstow, Daggett and eastward to Needles on the Colorado River in 1882-1883. A year or two later another line was built northward connecting San Bernardino and Barstow (Myrick 1963:623; Thompson 1929:20).

Chinese construction workers reportedly built much of both of these lines, but the locations of construction camps are unknown (Bean et al. 1979:4-21). Once the land and construction subsidies were in the hands of the Southern Pacific--the land grant included certain odd numbered sections of land within ten miles of the right-of-way--the Southern Pacific sold the actual railroad line to the Atchison, Topeka, and Santa Fe (Thompson 1929:20). A number of place names reflect these facts. Barstow was named for the president of the Santa Fe, William Barstow Strong. Daggett was named for John Daggett, a Southern Pacific ally who was Lieutenant Governor of California from 1883 to 1887. Victorville was named for J.N. Victor, the construction superintendent of the railroad the Southern Pacific built through that area about 1885 (Gudde 1969:22, 83, 354). One station on this line may retain a name and perhaps remains from an earlier year--Wild Crossing. A few houses for section hands existed here during the late 1920s (Thompson 1929:423). It is located near Link 24a.

## Later Mining and the Southern Pacific/Santa Fe Railroad

Within a few years of the arrival of the railroad in the Victorville-Oro Grande region, granite quarries were located and developed in the project area where the Mojave River had cut through a narrow canyon. This quarrying was underway by 1888 and extensive operations were being carried out by 1893 (California State Mineralogist 1888:500; Storms 1893). These quarries, which supplied building materials, curbing, and paving blocks for southern California cities and also supplied building stone used in San Francisco's Ferry Building, went under at least two names--the Oro Grande quarries and Leahy and Turner Granite Quarry (California State Mineralogist 1917:897; Wright et al. 1953:411 and 413). This quarrying was done almost entirely by hand. These operations were reportedly idle by 1917 (California State Mineralogist 1917:897). This quarry area is close to Link 33.

The presence of the railroad in the eastern Mojave Desert, combined with the increasing demand for copper due to the rapid industrialization of the United States, resulted in the reopening of the old Copper World Mine near old Ivanpah in the Clark Mountain District in 1898/1899. The Copper World would, over the years, prove to be the most important single mine in the project area. Although the mine itself is located one mile to the north of Link 7, the presence of the mine resulted in impacts located within the project area's boundaries.

In 1899 the owners of the property--which became the largest copper mine in the California desert--built a smelter at Valley Wells (also known as Rosalie), in the project area five miles southwest of the mine (Wright et al. 1953:63; Thompson 1929:31). This smelter consisted of a 100-ton capacity blast furnace and ore was hauled to it along a road, first by wagon and team, then, by the First World War period, by "tractor" (probably traction engine) (California State Mineralogist 1917:786; California State Mineralogist 1920:339). Small villages to house workers were constructed both at Valley Wells/Rosalie--where a post office also existed for a short time--and somewhere on the southern slope of Clark Mountain (Belden 1961; Germaine Moon, personal communication, December 4, 1984). The likely spot for this latter site is along the road between the mine and smelter very close to both Links 7 and 8. The finished product from this copper mine and smelter was shipped on a branch railroad line connecting to the main line of the Atchison, Topeka and Santa Fe at Goffs, far to the south (California State Mineralogist 1917:786). The main period of copper development was between 1899 and 1920, but in the 1940s both tailings and material at the smelter site were cleaned up and shipped out of the area for processing (Wright et al. 1953:63).

The final mining effort in the project area made possible by the presence of the railroad was the limestone, shales and silica quarries operated by the Southwestern Portland Cement Company beginning about 1916. This company established a cement plant one mile north of Victorville in 1916. From the plant location, it built a steam railroad--called the Mojave Northern Railroad --northeast about six miles, crossing the locations of both Links 32 and 33 to quarry sites a little over one mile northwest of a section of Link 32. Steam shovels were used to quarry material for shipment to this plant (California State Mineralogist 1917:859-860). The plant has been a long lasting one. It was shown on the 1956 U.S. Geological Survey (USGS) quadrangle and is still operative.

### The Arrival of the Union Pacific and Tonopah and Tidewater Railroads, 1905-1907

These two railroads, the Union Pacific (initially known as the Los Angeles and Salt Lake Railroad and completed in 1905), and Tonopah and Tidewater (completed in 1907) ran north of the Santa Fe line and strongly influenced the development of the large section of the project area lying between Daggett, California where the Union Pacific connected with the Santa Fe, and Roach, Nevada near where the proposed transmission corridor veers away from the Union Pacific tracks. The Tonopah and Tidewater mining railroad ran north off of the Union Pacific's main line at Crucero station, crossing the project corridor near Baker and again a few miles north of Silver Lake (Myrick 1963; 545-555, 623-647).

The arrival of these two railroads had an immediate impact on the project area by establishing stations along the track in areas where theretofore there had been little or nothing. These stations varied in size depending on various factors, including the resources--mainly mines--in the hinterland immediately adjacent to the station. Some stations apparently had living quarters for at least a section crew, men who kept the tracks in repair along a specific section of the line. Other "stations" were simply sidings where nothing existed, not even water (Thompson 1929:23). Stations along the Union Pacific in the project area, where apparently minimal development took place, include Dunn, New Dunn (formerly called "Poole") and Toomey. The Field station was a step higher in development than those mentioned above. It reportedly had a section crew stationed at the place in the late 1920s (Thompson 1929:438). The Union Pacific station at Roach, Nevada saw even more development. Roach was a secondary shipping point for the Clark Mining District in California and the Yellow Pine Mining District in Clark County, Nevada. Discovered in the 1850s, the latter mining district--which produced a variety of minerals--saw little development until the completion of the railroad in 1905, when mining in the district was "greatly stimulated" (Lincoln 1923:29). Roach then saw development as a shipping and supply point. Once highways were developed in the region by the 1920s, Roach was a stopping place, with a population of about ten, where food and gasoline were available (Hewett 1956:8; Thompson 1929:608). A large 1930s can dump reportedly exists within the project area near Roach (Greenwood 1979:48). Roach is located very close to Links 2, 3, and 4.

Baker was another railroad station--this one on the Tonopah and Tidewater Railroad--which saw development as a local mining center and where a section crew lived. The place had earlier been a mining camp known as Berry, after a prospector. In 1908 the railraod changed Berry to Baker in honor of R.C. Baker, the President of the Tonopah and Tidewater (Gudde 1969:19; Hall et al.

1981:38; Thompson 1929:555). Baker did reasonably well as a small town as long as the Tonopah and Tidewater continued to haul borax, clay, and other products. It got a post office in 1933. By the time the railroad was shut down in the early 1940s, Baker had become a major highway service center (Hall et al. 1981:38). Baker lies close to Links 9 and 12.

### Mining in the Project Area Along the Union Pacific Railroad, 1905-1930s

As was the case elsewhere in the project area, the arrival of the railroad solved the transportation problem which had previously limited the development of certain types of mines. The first such mine to be opened up by the coming of the Union Pacific was the Baxter and Ballardie Marble and Limestone Quarries, located in the Cave Mountains north of Baxter Station. These quarries--opened by 1914--produced marble for ornamental or building purposes along with limestone which was shipped to beet sugar factories at Oxnard, Santa Ana, Huntington Beach, Los Alamitos, Anaheim and Chino. The limestone was used in processing beets into sugar (California State Mineralogist 1917:871-876). The Baxter District was the most productive limestone district in San Bernardino County for this and other purposes. The material was quarried using a workforce of about 50 laborers and 10 mechanics. A spur track was built into the quarry and a 110-foot steel boom derrick, a Fairbanks-Morse gas engine, a pumping plant, nine dump cars, machine drills and compressor, and several thousand feet of track as well as bunk and boarding houses for the crew were set up (California State Mineralogist 1917:872-876). After some years idle, the quarries were reopened about 1923 and continued in operation for the next few years (California State Mineralogist 1923:64; 1930:308). These quarries may also have seen some later development. They are located very close to Link 17.

The Mohawk Mine--a lead, zinc, and silver mine located in the Clark Mountain District about two miles southwest of the Copper World Mine--was operated during both world wars when demand for metals was unusually high. During 1917 operations ore worth a reported $70,000 was hauled to Cima on the Union Pacific for shipment to processing plants. Some of its ore was also reportedly shipped to Roach. The property was then mostly or entirely idle until 1942 but was then reopened and worked again during World War II. It also saw some development in 1951 during the Korean War (California State Mineralogist 1920:363; Thompson 1929:599; Wright et al. 1953:110). This mine is very near Link 8.

Another late mine in the Clark Mountain District was the Desert Antimony Mine, the only antimony mine in San Bernardino County. It was operated in a small way in 1927-1928 and again in 1939. Several adits and at least one shaft were used to develop this deposit. A 12-horsepower Western gas engine hoisting works was used for the shaft, and a 10-ton furnace was used at the mine to reduce the ore. The finished product was then undoubtedly shipped on the Union Pacific Railroad. The Roach, Nevada station lies only about 12 miles to the northeast (California State Mineralogist 1930:204-205; Wright et al. 1953:59). This mine is very close to Link 5c.

Finally, the development of several late mines were unrelated to the existence of the railroads which ran through the project area and its environs. The first of these was the Telegraph Group of Mines, the main mining group in a mining district known by at least two names: Solo and Halloran Springs (Clark 1976:158; Gudde 1975:149, 326). Gold reportedly was discovered in the area as early as 1900, but operations were apparently small in scale until the Telegraph Mine was located in late 1930. High grade ore was then discovered in an extension of the original claim and mining was revived in the district. A large number of shafts were sunk in the area immediately to the north and northeast of the Telegraph. Some of these shafts lie in the project area, although the main part of the Telegraph Mine lies between and just outside the half-mile corridors for Links 9 and 10. While the Telegraph was in operation during the 1930s it produced about $100,000 worth of gold. Equipment at the mine included hoisting works, compressors, cars, and air drills. Milling equipment consisted of a 25-ton amalgamation and flotation plant (California State Mineralogist 1938:15-16; Wright et al. 1953:82). While processing facilities did exist at the Telegraph Mine at least for a time, one lessee during the mid-1930s shipped 220 tons of ore to a mill located at the small town of Yucca Grove about two miles east of the mine. Yucca Grove probably had its origins as a town on the highway to Salt Lake City. It lies close to the route of Link 9.

The Kramer Hills region, near the western border of the project area, was another area which saw late gold mining not stimulated by the railroad. In the 1920s Ed Herkelrath and his cousin, John, found a narrow vein of rich ore in the Kramer Hills. This stimulated a brief gold rush and a tent city in the hills outside the project area. A large number of shafts were developed in the area during this period in an attempt to locate more ore. Apparently none of these shafts were successful, as only one mine was reported to be profitable (Gudde 1975: 189).

The shafts lying along the route of Links 37 and 38 through the Kramer Hills probably relate to this 1920s gold rush (Belden 1963b). The area is named for Moritz (or Fritz) Kramer, who lived in the area in the 1870s (Belden 1955, 1963b). Another mine in the same area was the Anaco group, also known as the Red Raven and Red Rover. This was a lead, silver and zinc mine lying in the Shadow Mountains just west of Link 30. Several shafts were driven at this mine either during the 1940s or before (Wright et al. 1953:mine #230).

Two other mining locations in the project area involved clay deposits which were shipped outside. One of these was located along Link 27. This was owned by the Gladding McBean Company of Los Angeles and supplied buff-burning clay for the manufacture of face brick (Wright et al. 1953:mine #398). Another clay mine was located in the Cronese Valley along Link 16. It supplied clay for canal and reservoir linings (Wright et al. 1953:mine #398). Finally, there are several mines or mining areas about which data are either scanty or entirely lacking. These include a number of borrow or gravel pits, sites occasionally used to extract material for roads or railroad grades. The Aga mine near Link 9 northwest of Baker also fits into this category, as does the Amazon Copper Mine, reportedly located on Quartzite Mountain near

Link 32 (Wright et al. 1953:mine #3). The possible Borax Mine near Link 1 and the mining location shown on Harvard Hill near Link 22 also fit into this category.

In sum, there were a large number of mines in the project area, reflecting the fact that mining was the second most important activity in the project area in historic times.

## Agriculture in the Project Area 1860s-1930s

The historic overview and discussion of related historic sites has so far discussed only what are best labeled outside-dependent activities and sites. Transportation and mining related developments are by their very nature dependent on the outside world for their continued existence. The population inhabiting such sites and carrying on these kind of activities are mostly male, and decisions about future operations are typically made in distant urban cities. Such decision makers often care little about how the environment and local people are affected by their decisions, which are usually made on the basis of profit maximization over the short term. Standing in contrast to such dependent or outside oriented activities is agricultural development.

Agriculture is a relatively independent economic activity rooted to the land and environmental realities. Such activity has a strong sense of place. It generally represents a more permanent development which is at the same time less closely integrated into the outside world. The population profile of agricultural settlements normally includes large numbers of women and children. Agriculture depends on soil, sunshine and water, however, and the project area suffers a chronic storage of the last named. This fact has made agriculture in the project area both less common and more precarious than it would be if adequate water were available. This key factor--water--has also influenced the type of agricultural development in a given part of the project area.

In the westernmost part of the project area--west of Barstow--water is more plentiful and mixed agriculture is possible. Therefore truck farms and fruit raising as well as cattle ranching have been possible in this region. Moving eastward from Barstow, however, farming becomes more problematic and agricultural activities focus mainly on cattle and sheep ranching. Finally, because agricultural activity is generally considered to be a mundane activity, available information on this aspect of the project area's history is limited. Existing overviews have few specifics. The generalizations contained in these reports merely confirm that agricultural development was never a main theme in the project area's history; areas under cultivation were always "scattered and small" even in the most favored locations (Thompson 1929:373). Late homesteads in the highland valleys had a subsistence tendency, often aiming at being independent and self-sufficient. Most such homesteads were soon abandoned, however (Norris and Carrico 1978:66). Cattle ranching seems to have been the most important single agricultural activity in the project area.

## Early Agriculture 1860s-1890s

The first phase of agricultural development in the project area began in the 1860s and was mainly confined to the relatively well watered lands along the Mojave River (Hall et al. 1981:33; Thompson 1929:20). Once the Indians in the eastern Mojave Desert had been suppressed, cattle and sheep driven along the Mohave Road became common. The Daggett-Barstow area eastward some miles then became a cattle grazing center, using public land. During the 1880s homesteads were established in this area, Charles Mitchell Sr. being one of the leaders of this trend. The Mitchell Ranch still existed somewhere in the Forks-of-the-Road/Hawley's Mill area in the 1960s (Bean et al. 1979:4-23; Desert Dispatch May 3, 1972:12; Weinman-Roberts 1980:158). It was apparently near Links 21, 22, and 23. In the same area is another ranch which probably dates to about the same era as the Mitchell. This is the McCormick Ranch, reportedly in operation in the 1920s (Thompson 1929:504-505). A few miles to the east two local stockmen named Cartwell and Winters took over the second location of Camp Cady for a ranch in the 1870s (Weinman-Roberts 1980:179).

At the same time as ranching was being developed in the area around and east of Daggett, irrigation activities were started between Victorville and Oro Grande. Water rights were claimed in the Lower Narrows area as early as 1861. By 1879 six ditches were present in the Lower Narrows area near Link 32 (Weinman-Roberts 1980:156). The Turner Springs area, near the site of Lane's Station (Link 32) also had an early ranch (Weinman-Roberts 1980:181).

## Later Agriculture 1900-1930s

Agricultural activity increased in intensity after the turn of the century when two large and a number of small scale agricultural developments were launched. The first large scale development began in 1910 when the Mohave River Land and Water Company was incorporated. This company had a plan for the large scale irrigation of from 20,000 to 40,000 acres from the Forks-of-the-Road area eastward about eight miles along the Mohave River. Surface and subsurface Mohave River water in this area made this scheme seem feasible. Some wells were drilled and several miles of concrete canals were constructed before the company ran into financial difficulties. After reorganization as the Yermo Water Company in 1917 some few hundred acres were irrigated, but this development apparently did not last (Thompson 1929:507-509).

Another large scale development was more successful. This was Adelanto, an agricultural community founded about 1917 by E.H. Richardson, the inventor of the Hotpoint iron. Since the site was near the Mojave River, pumping of water to irrigate fruit (apple, grape and pear) orchards was relatively easy. A turkey farm was also established, along with some vegetable farms. Richardson's aim was to set up a model community for the reclaiming of desert lands, and a cooperative company was formed to pump and pipe water to the farms.

Secondary agricultural industries such as cider mills, a winery and packing plant to dress turkeys were also erected, as were roadside stands to sell produce (Belden 1955, 1963a, 1963b; Gudde 1969:3; Thompson 1929:419). The town of Adelanto is outside the project area about one mile from Links 31 and 35. The Astley Rancho site, about 13 miles to the northwest and along Link 40 may date to the period of the Adelanto development.

Smaller scale agricultural sites during the first part of this century were more numerous in the project area. A few hundred acres were reported irrigated in the Helendale-Hinkley-Barstow area in the 1929s. A ranch near Helendale (apparently outside the project area) grew alfalfa and fruit near the river (Thompson 1929:433). Homesteading on the borders of Coyote Dry Lake (the Coyote Wells area) and in Cronese Valley was reportedly underway before 1919, probably by 1910 (Bean et al. 1979:4-26; Casebier 1981:320; Thompson 1929:279-280, 514, 536, 547). The dry farming in these areas (along Links 16 and 20 respectively) was only sporadically successful, however, and these homesteads were soon abandoned (Thompson 1929:279, 514, 536, 547). One ranch house with two wells--that of H.D. Bradley--was reported close to Link 16 (Thompson 1929:538, 543).

Finally, cattle ranching took place in the far eastern section of the project area at Valley Wells/Rosalie, where the Yates Cattle Ranch was headquartered in the 1920s. This ranch, owned during the late 1920s by Sam E. Yates, ran several hundred cattle and had several wells. Valley Wells Station--on the highway about two miles southwest of the old copper smelting site and close to Link 8--was reportedly the center of this cattle operation (Germaine Moon personal communication December 4, 1984; Hewett 1956:4, 7-8; Thompson 1929:602).

## Roads, Highway Towns and Transmission Lines: the Project Area in More Recent Times 1920s-1930s

The arrival of the internal combustion engine in the form of the automobile during the 1920s led to a transportation revolution as important as the one wrought by the arrival of the railroads during the late nineteenth and early twentieth centuries. Road-building efforts since the 1920s have created the need for gas station and food stopping places along the major highways. This in turn has caused the establishment or the continued existence of small towns in or close to the project area. Roads and the automobile were also a key link in the sustained boom in the growth of population and development of the Los Angeles basin, a fact which led to the increase in the demand for power which caused the first electric power transmission system to be built through the project area during the mid-1930s.

The most important road across and adjacent to the project area is Interstate 15 (I-15). This first crosses the project area near Victorville, then recrosses it a number of times between this point and Roach Lake, Nevada. The I-15 route has been an important east-west automobile route since the early 1920s when it was known as the Arrowhead Trail. It follows much of the

"Old Spanish Trail" (also known as the Mormon Trail), to Salt Lake City. Much of the credit for its construction goes to Arthur J. Doran, a county supervisor who pushed this highway construction effort (Weinman-Roberts 1980:143). The Arrowhead Trail began as a San Bernardino County road linking the San Bernardino area with the eastern part of the county (Thompson 1929:143, 536). Since it ran through the old railroad town of Barstow, this became the main urban center for desert travel. But Hallo and Baker, located in the project area along I-15, became minor towns on the highway. It is unclear what is at Hallo, located three miles northeast of Baker, but the latter town, on the old Tonopah and Tidewater Railroad about 60 miles east of Barstow, greatly benefitted from the creation of this highway. The Tonopah and Tidewater Railroad died in the early 1940s, but Baker lives on because of I-15. Baker and Hallo are both near Link 9.

Something similar happened in the case of Kramer Junction, located in the project area at the junction of highways 58 and 395 about 35 miles west of Barstow. Two miles west of Kramer Junction (and outside the project area) was the original town site of Kramer, a station on the Southern Pacific/ Santa Fe Railroad beginning in the 1880s. When the rich gold district of Randsburg was opened up in the late 1890s, the Santa Fe ran a branch line north from Kramer (a boom town into the 1920s) to the Randsburg area. After some years of declining business, the Santa Fe took up the track in 1933 (Belden 1963; Clark 1976:164). The result was the virtual abandonment of Kramer and a shifting of businesses to the crossroads at Kramer Junction. The positioning of the highways 58 and 395 had created an instant town. Kramer Junction is near Link 38.

The creation of the giant Boulder Dam during the early 1930s resulted in the construction of the longest high-voltage electrical transmission line in the United States being built through the project area. Five work camps, each housing between 130 and 180 men, were established in the project area. These camps were occupied for up to two years while construction of the transmission line was underway. During this period sleeping quarters, mess halls, cook houses, shower facilities and recreation halls existed at these sites (Greenwood 1979:37, 38, 48-49). The camps--located near Roach (Link 2), Kingston Valley (Link 6), Silver Lake (Link 6), Harvard (Link 21b), and Victorville (Link 55)--were not located during a previous field survey with one exception (Greenwood 1979:49). Along Link 2 near Roach a large 1930s can dump was located in the same section where the Roach (called the Jean) construction camp was located (Greenwood 1979:48). This is probably the remains of the transmission line construction effort. Remains of the four other camps may exist under sand at their respective locations.

The history of the project area thus ends in a way similar to the way it began, with transportation. During the time between the arrival of the earliest explorer and today's high speed highway traveller, mining and agriculture were also important to the small number of people occupying the project area. While this desert region has had its historical uses, the relatively harsh environment of the area has prevented large scale settlement and the intensive sustained development characteristic of more favored geographical locations.

## STUDY PERSONNEL

Work on the historic overview and inventory of historic cultural resources was conducted during late 1984 by Dr. Laurence H. Shoup, historian and principal investigator, and Matthew Emerson, historical archaeologist and researcher. Shoup was responsible for some of the research and all of the report writing. He holds an M.A. degree in Social Science from California State University Los Angeles (1967), and a Ph.D. in United States history from Northwestern University, Evanston, Illinois (1974). Emerson did the bulk of the field and library research for this project. He holds a M.A. degree in Anthropology from the University of California, Berkeley (1981) and is currently a Ph.D. candidate in Anthropology at that institution.

## INVENTORY METHODS

### Data Collection

Methods used to develop the inventory are described below. An existing data base collected during previous environmental investigations was used as well as a review of secondary sources, contacts with knowledgeable individuals and historical information depositories for the study area.

### Data Sources

Both primary and secondary literature sources were reviewed for the inventory and overview. Types of sources consulted for historic information about the project area included the following:

- Cultural resource management reports and documents.
- Local, state and Federal registers of historic properties.
- Published primary and secondary sources on the history of the area.
- Published and unpublished historical documents, especially maps, including USGS topographic quadrangles, U.S. General Land Office survey plats and California Division of Mines and Geology maps and reports.
- Knowledgeable informants who know the study area first hand.

### Agencies Contacted

A variety of institutions and agencies, as shown in the agency contact list, were contacted to compile the data needed to write an historic overview and complete an inventory of historic sites. These included:

In Berkeley:
University of California (Bancroft Library, Map Library, Main Library (Doe) Library, Water Resources Archives, Earth Sciences Library)

In Pleasanton, California:
California Division of Mines and Geology Library

In San Bernardino:
San Bernardino Public Library
San Bernardino County Library Administration and Archives
Arda Haenszel Archives (private home)

In Redlands:
San Bernardino County Museum
San Bernardino County Museum Association

In Riverside:
Bureau of Land Management (BLM)
Riverside Municipal Museum
University of California, Riverside (Department of Anthropology, Archaeological Research Center)

In Barstow:
BLM
WIRTH Environmental Services
Mohave River Valley Museum
Germaine Moon Archives (private home)

In Las Vegas:
University of Nevada, Las Vegas (Departments of Anthropology and History, Nevada Archaeological Survey, Museum of Natural History, Main Library, Special Collections)
Nevada State Museum and Historical Society

In Daggett:
Daggett Historical Society

**Fieldwork**

No field checks of historic sites were conducted as part of this study. Such checks will be scheduled at a later time during subsequent phases of the research.

### Data Compilation

Site specific data were collected for the geographic area lying within one mile on either side of the centerline. All known historic sites within one-half mile of the centerline and more significant known historic sites within another half-mile of the centerline were inventoried. Sites were plotted on USGS 7.5 and 15 minute topographic quadrangles and subsequently transferred to a project ½ inch = 1 mile base map.

## Sensitivity Analysis

The sensitivity analysis was conducted on an areal basis. Initially, areas of relatively high concentration of historical locations were isolated because such areas tend to be centers of historical development, and one would expect to find the greatest concentrations of historical remains in these areas. Additionally, individual sites of particular historical concern are included in the sensitivity analysis. Single sites of low significance, such as wells and isolated mine shafts, were excluded from the sensitivity assessment.

In assigning sensitivity levels, the following factors were considered:

- Resource significance - A preliminary assessment of resource significance was made taking into account research value and public value. Historical theme, period of use, possible information yield, and interpretive potential were considered in assigning significance ratings.
- Resource density - Single sites are considered relatively avoidable in facility siting and thus received lower sensitivity ratings. Where sites are highly concentrated, avoidance is more problematical; such areas received higher sensitivity ratings.
- Previous surveys - If intensive surveys had been conducted in an area with negative results, sensitivity ratings were lowered.

Areal sensitivity is tabulated in Table 10-1.

## INVENTORY RESULTS

The inventory of historic sites is organized by link, and shown in Table 10-2. Approximate link mileage designations are not provided in this general report to protect the confidentiality of the more sensitive site locations. This information, along with an historic sites inventory map, will be made available to appropriate personnel for purposes of planning and preservation. Many of the sites are known, however, and general areal locations of the less sensitive sites are provided in the description column of Table 10-2.

## IMPACT ASSESSMENT

### Introduction

The purpose of the impact assessment is to predict relative impacts of the routing alternatives. As tower and access road locations are not known at this stage of project-planning, precise impacts and applicable mitigation measures for specific sites cannot be determined. Such assessments and mitigation requirements will be completed later to meet the BLM's responsibilities under 36 CFR 800. For present purposes, the impact assessment will be areal rather than site-specific. The areas of historic resource sensitivity defined in the inventory report will form the basis of the impact assessment, but estimated requirements for access road construction will also be taken into consideration. In order to include access roads and indirect impacts, a quarter-mile wide impact area centered on the link centerlines is assumed.

### Methods

Impacts to historic resources have been divided into three impact types:

1. Physical or visual effects to properties included on or known to be eligible for inclusion on the National Register of Historic Places.
2. Physical effects to historic properties based on expected site density and significance.
3. Visual effects to historic properties having visual sensitivity and high site integrity.

In rating the severity of these impact types, three impact levels have been defined:

- High: A high level of impact resulting from the construction, operation, maintenance or abandonment of the proposed project would potentially cause a significant or substantial adverse change or stress to historical resources.
- Moderate: A moderate impact would result if the construction, operation, maintenance or abandonment of the proposed project would potentially cause some adverse change or stress (ranging between significant and insignificant) to an environmental resource.
- Low: A low impact level is assigned if the potential for adverse impacts to significant sites is considered to be low.

As significant sites could occur anywhere along the alternatives, significant impacts are also possible in all cases. The impact levels refer to the relative probability that such impacts will be unavoidable.

As shown below, in assigning impact levels a two-dimensional model was developed, using historical sensitivity and access road requirements as factors. In transmission line siting, the need for new access roads increases the probability of both direct and indirect impacts, while requirements for upgraded roads increases the probability of direct impacts. Where existing access is sufficient, impacts are relatively avoidable in tower siting.

| | Access Requirements | | |
|---|---|---|---|
| Sensitivity Level | New | Upgrade | Existing |
| Major Sensitivity | High + | High | High - |
| Moderate Sensitivity | Moderate + | Moderate | Moderate - |
| Minimal Sensitivity | Moderate - | Low + | Low |
| Low Site Density | Low - | Low - | Low - |

In assessing impacts, it was assumed that avoidance is the preferred mitigation measure. Probability of avoidance is factored into the sensitivity and impact models. For the Mead/McCullough-Victorville/Adelanto Project, mitigation (including data-recovery where necessary) can probably reduce impacts to historical resources to an insignificant level for all routes. Hence, initial impacts rather than residual impacts (impacts after mitigation) are considered the more appropriate criteria for route selection.

## Results

The results of the impact assessment for historical resources are presented in Table 10-3.

## MITIGATION

As presented in the project description, DWP has already agreed to complete generically committed mitigation which includes pre-construction cultural resource studies. Mitigation of impacts to cultural resources can be mitigated following procedures developed by the Advisory Council of Historic Preservation (ACHP). This will require (1) an intensive survey of the selected right-of-way and access roads, (2) an evaluation of identified resources for eligibility for the National Register of Historic Places in consultation with the California and Nevada Offices of Historic Preservation, (3) determinations of effect on eligible properties in consultations with ACHP, and (4) implementation of prudent and feasible measures to avoid or reduce adverse impacts. In developing a mitigation plan, avoidance of impacts is the preferred option, as other mitigation measures generally entail the partial destruction of the resource.

## CONCLUSIONS

Impacts to historic resources due to construction, operation, maintenance and decommissioning of the Mead/McCullough-Victorville/Adelanto 500kV transmission line do not appear to be severe. The most important resources in the region were avoided in identifying the alternative corridors. Specific resources along the alternatives are relatively avoidable in facility siting. Where impacts are unavoidable, data recovery appears to be an acceptable mitigation measure.

## AGENCY CONTACTS

## RESOURCE: HISTORY

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| California Division of Mines and Geology Library<br>Pleasant Hill, California | 11/23/84 | Personal visit | Archival research |
| Bancroft Library<br>University of California<br>Berkeley, California 94720 | 11/14-11/26/84 | Research visit | Archival research |
| Moffett Library,<br>Map Room<br>University of California<br>Berkeley, California 94720 | 11/15-17/84<br>12/05/84 | Research visit | Archival research |
| Water Resources Archives and Library<br>O'Brien Hall<br>University of California<br>Berkeley, California 94720 | 12/05/84 | Research visit | Archival research |
| Mr. Garth Portillo<br>District Archaeologist<br>CRM Supervisor for McCullough-Victorville/Adelanto Project<br>Bureau of Land Management<br>Riverside, California | 12/04/84 | Telephone | Discussed project area and archival sources checked in San Bernardino and Riverside counties. He promised to send literature on Colossium Mine (Reynolds et al.) and updated information on eligible National Register properties in project area. |
| Fred Holliday<br>San Bernardino Historical Society<br>P.O. Box 875<br>San Bernardino, California 92402 | 12/04/84 | Telephone | Discussed project corridors and local history interest. The society produces a Historical Quarterly and Annual Report. Holliday will check index of Quarterly and Annual Reports for articles and information on impacted sites. |

# AGENCY CONTACTS

## RESOURCE: HISTORY

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Victoria Adair<br>Wirth Environmental Services<br>Barstow, California | 12/04/84 | Telephone | Informed her we were doing document and archival research in the county and asked for suggestions of places to visit and people to see. |
| Victoria Adair | 12/04/84 | Telephone | Asked for copies of Topographic maps for Mojave River Valley Museum; maps which were marked with proposed power line corridors for concerned museum personnel. |
| Clyde Woods<br>Wirth Environmental Services<br>San Diego, California | 12/04/84 | Telephone | Discussed briefly progress on document and archival search. Woods approved and promised to send base map with marked power corridors to the President of the Mojave River Valley Museum, Barstow. |
| Ken Schulte<br>Bureau of Land Management<br>Barstow, California | 12/04/84 | | Informed him I was in the county doing document and archival search for McCullough-Victorville/Adelanto Project. Informed him of project routes. |
| Ms. Germaine Moon<br>Historical Consultant<br>Mojave River Valley Museum<br>Barstow, California; and<br>1517 Paloma Street<br>Barstow, California 92311 | 12/01/84 | Personal interview at home | Discussed document survey, available archival sources. |
| | 12/04/84 | Meeting at home | Discussed project corridors, link by link for unpublished historic properties and sites which are sensitive to impact from project.<br>Moon has much archival material and is an expert on the area's historical and archaeological resources. She is interested in commenting on site impact along the corridor both personally and through the Mojave River Valley Museum. |
| | 3/18/85 | Meeting at home | Discussed historical resources in the area of Coyote Wells. She provided information on trails, roads and mining activities. |

## AGENCY CONTACTS

## RESOURCE: HISTORY

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Dr Kevin Rafferty<br>Director - Division of Anthropological Studies | 12/03/84 | Meeting | Discussed previous overviews of Eastern Mojave Area and McCullough Mountains, Nevada. Discussed project area. |
| Dr. Lynda Blair<br>Research Specialist<br>Environmental Research Center<br>4505 Maryland Parkway<br>University of Nevada<br>Las Vegas, Nevada | | | |
| Dr. Frank Wright<br>Curator of Education<br>Nevada State Museum and Historical Society<br>700 Twin Lakes<br>Las Vegas, Nevada | 12/03/84 | Personal interview | Discussed project area and locations of archival materials. Checked museum publications and indexes. Checked Nevada Historic Sites Inventory. |
| Dr. Ralph Roske<br>Department of History<br>University of Nevada<br>Las Vegas, Nevada 89154 | 12/02/84 | Personal interview | Discussed project area. Roske has written overviews of this area for BLM. |
| Dr. Elizabeth Patrick<br>Librarian-Special Collections<br>Dickinson Library<br>University of Nevada<br>Las Vegas, Nevada 89154 | 12/02/84 | Personal interview | Discussed project area. Reviewed old maps from Special Collections Department. |
| Dr. Robert Davenport<br>Department of History<br>University of Nevada<br>Las Vegas, Nevada 89154 | 12/02/84 | Personal interview | Informed him of project area and possible impact areas. |

## AGENCY CONTACTS

## RESOURCE: HISTORY

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Pat Keeling<br>Publications Chairman<br>Board of Directors | 12/01/84 | Personal interview | Discussed references and archival sources for project area and historic sites. |
| Mojave River Valley Museum<br>P.O. Box 1282<br>Barstow, California | 12/04/84 | Museum meeting | Discussed each link of project area individually with emphasis on the locations of historic properties so represented in published references.<br>Keeling is editor/author of Once Upon a Desert and is very concerned with the project impacts. She would like to comment on the project personally as well as through the museum. |
| June Zeitelhack<br>Vice President<br>Mojave River Valley Museum Association | 12/01/84 | Museum meeting | Discussed project area and "improved access" concerns and the impact of historical properties outside of the project area.<br>Ms. Zeitelhack would also like to comment personally and through the museum association regarding the project area. |
| Bill Heegel<br>Assistant Superintendent<br>San Bernardino County Regional Parks<br>Calico Ghost Town<br>(Resident of area for 28 years) | 12/01/84 | Personal interview | Discussed project corridors and proximity to Calico Ghost Town. He stated that there would be minimal impact in his area of jurisdiction. |
| Will Jenson<br>3195 Dunbarton Road<br>San Bernardino, California 92404<br>(student - Cal State, San Bernardino) | 11/30/84 | Personal interview (at San Bernardino County Museum) | Discussed project corridors through Silver Lake area. This student has research interests in Clark Mountain area, too. Concerns include additional access and publication of locations of significant historic sites. |

## AGENCY CONTACTS

## RESOURCE: HISTORY

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Jeanette Bernthaler<br>Archivist<br>Library Administration<br>Headquarters<br>104 West 4th Street<br>San Bernardino, California | 11/30/84 | Telephone | Discussed project area and archival sources in the county. Discussed availability of archival materials at county library branches in Victorville and Barstow. |
| Robert Reynolds<br>Curator of Earth Sciences<br>San Bernardino County Museum<br>2024 Orange Tree Lane<br>Redlands, California 92373 | 11/30/84 | Personal interview | Discussed project impacts - sensitive cultural and historical areas. Reynolds would like to comment on the project impacts, particularly on the Ivanpah and Clark Mountain Districts. Reynolds advised about not publishing the locations of historic sites in public reports. Primary concerns are for impact of historic areas outside the 1-2 mile corridor. "Improved Access" t sensitive areas is a direct impact on significant historic and prehistoric resources outside project corridors.<br>Particular Areas of High Sensitivity are:<br>Green Wells Area<br>Rosalie-Valley Wells<br>Barstow Fossil Beds-Rainbow Canyon<br>Clark Mountain District |
| Jennifer Reynolds<br>Earth Sciences Division<br>San Bernardino County Museum<br>2024 Orange Tree Lane<br>Redlands, California 92373 | 3/22/85 | Personal interview | Discussed historical resources in the Calico Mountains. |

# AGENCY CONTACTS

## RESOURCE: HISTORY

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Arda Haenszel<br>Historical Consultant and Curator of Historical Research<br>San Bernardino County Museum Association<br>San Bernardino, California 92405 | 11/30/84 | Personal interview and research | Discussed project area and the sensitivity of cultural and historic properties in the proposed corridors. Arda Haenszel would like to comment on the project's impact on historic and prehistoric sites. She has a large amount of archival material at her home. |
|  | 3/18/85 | Telephone interview | Discussed mining activity and related historical resources in the Calico Mountains. |
| Irene Mathews<br>Archivist - Armacost Library<br>University of Redlands<br>Redlands, California 92374 | 11/30/84 | Telephone message | Left information regarding project areas and invitation to comment or provide archival information about particularly sensitive areas. |
| Paul Kopach<br>Librarian<br>Needles Branch<br>San Bernardino County Library<br>Needles, California | 11/29/84 | Telephone | Asked about archival material at the county branch there. Discussed project area and possible areas of historic significance. Asked for comment. |
| Roe Blake<br>Central Microfilm<br>East Rialto Avenue<br>San Bernardino County Library<br>San Bernardino, California | 11/29/84 | Telephone | Asked about microfilms of county archival records. Informed him of project area and asked for comment. |

# AGENCY CONTACTS

## RESOURCE: HISTORY

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Daniel McCarthy<br>Staff Archaeologist<br>Archaeological Research Center<br>University of California, Riverside<br>Riverside, California | 11/29/84 | Personal interview | Discussed project area and known sites of historical significance. |
|  | 3/21/85 | Personal interview | Discussed historical resources in the Calico Mountains. |
| Dr. Philip Wilke<br>Department of Anthropology<br>University of California, Riverside<br>Riverside, California | 11/29/84 | Personal interview | Discussed project area and sensitive historic and cultural sites. Discussed his current excavations and research in the Clark Mountain Area. Wilke would like to comment on the project area and any impacts. |
| Dr. Homer Aschmann<br>Department of Geography<br>University of California, Riverside<br>Riverside, California | 11/29/84 | Personal interview | Informed him of project area and asked for comment. Aschmann has had research interests in this area in the past. |
| Michael Lerch<br>P.O. Box 11<br>Redlands, California<br>(graduate student)<br>Coordinates archaeological research for Philip Wilke | 11/29/84 | Personal interview | Discussed project area and asked for comment. Lerch is currently engaged in archaeological research through the University of California, Riverside in the Clark Mountain Area. |
| Steve Becker<br>Director - History Division<br>Riverside County Parks and Recreation<br>Riverside, California | 11/28/84 | Telephone | Discussed project area and asked for suggestions of archival sources in San Bernardino and Riverside counties. |

# AGENCY CONTACTS

## RESOURCE: HISTORY

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Dr. Harry Lawton<br>Lecturer, author<br>Administration-Analyst/College of Natural and Agricultural Sciences<br>4170 Batchelor Hall<br>University of California, Riverside<br>Riverside, California | 11/28/84 | Telephone | Informed him of project area and asked for suggestions of archival sources at the University of California, Riverside. |
| Clifford Wurfel<br>Librarian<br>Special Collections<br>Main Library<br>University of California, Riverside<br>Riverside, California | 11/28/84 | Personal interview | Asked for archival maps of project area. Informed him of project area and document search. |
| Carol Rector<br>Staff Archaeologist<br>Bureau of Land Management<br>Desert District Office<br>1695 Spruce Street<br>Riverside, California 92507 | 11/28/84 | Personal interview | Discussed project area. Searched BLM archival materials for site locations and reports. |
| Robin and Quentin Gilliam<br>Riverside Municipal Museum<br>Riverside, California | 11/28/84 | Personal interview | Discussed project area and asked for comment. The Gilliams are interested in the many places of the Eastern Mojave Desert. |
| Ms. Mildred Johnson<br>Librarian - California History Room<br>San Bernardino City Library<br>San Bernardino, California | 11/27/84 | Personal interview archival research | Archival research. |

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# TABLES

## TABLE 10-1
## MEAD/McCULLOUGH-VICTORVILLE/ADELANTO TRANSMISSION LINE STUDY
## HISTORICAL RESOURCES SENSITIVITY

| Area | Theme | Dates | Historical Significance | Centerline Intensive Survey | Known Sites | Sites/ Mile | Link | Sensitivity |
|---|---|---|---|---|---|---|---|---|
| Roach | Trans. | 1830s-1930s | Moderate | Parallels North | 1 | NA | 3 | Moderate |
| Antimony | Mining | 1920s | Moderate | Partial (1/2) | 3 | 1.1 | 5b | Moderate |
| Mohawk Mine/ Mescal Spring | Mining | 1860s-1880s | High | Link 8 Yes<br>Link 7 Partial (1/2) | 3 | 1.5 | 7, 8 | Moderate |
| Valley Wells/ Rosalie | Mining | 1899-1920 | High | Yes | 3 | 3 | 7 | High |
| Valley Wells Station | Ranching | 1920s | Moderate | Yes | 1 | NA | 8 | Low |
| Yucca Grove | Mining/ Trans. | 1930s | Low | Link 9 Yes (1/2),<br>Parallel (1/2)<br>Link 10 No | 5 | 1.7 | 7, 9, 10 | Low |
| Halloran Spring | Ranching/ Trans. | 19th & 20th C | Moderate | Link 9 Parallel North<br>Link 10 Partial (1/2) | 2 | 0.8 | 9, 10 | Moderate |
| Baker/Soda Lake | Mining/ Trans. | 19th & 20th C | High | Link 12 Yes<br>Link 9 Partial (1/6) | 4 | 1.3 | 9, 12 | Moderate |
| Bradley Ranch | Ranching | 1920s | Moderate | Yes | 1 | NA | 14 | Low |
| SBr-3189 | Mining | ? | Moderate | Yes | 1 | NA | 6 | Moderate |

Table 10-1 (continued)
Historical Resources Sensitivity

| Area | Theme | Dates | Historical Significance | Centerline Intensive Survey | Known Sites | Sites/ Mile | Link | Sensitivity |
|---|---|---|---|---|---|---|---|---|
| Silver Lake/ Silurian Hills | Mining/ Trans. | 20th C | Low | Yes | 8 | 0.9 | 6 | Low |
| Black Gap | Trans. | 19th C | Moderate | Yes | 1 | NA | 6 | Low |
| Baxter/Ballardie | Mining | 1914-1920s | Moderate | No | 1 | NA | 17 | Moderate |
| Dunn | Trans. | 20th C | Moderate | Yes | 4 | 1.0 | 18, 22 | Low |
| Field's Station | Trans. | 20th C | Moderate | Yes | 1 | NA | 22 | Low |
| Camp Cady | Military/ Ranching | 1860s-1880s | High | Yes | 2 | 0.8 | 22 | Moderate |
| Forks-in-Road | Ranching/ Trans. | 19th - 20th C | High | Yes | 5 | 2.0 | 21b, 22, 23 | High |
| Mining Area C | Mining/ Trans. | Unknown | Moderate | Yes | 2 | 2.9 | 44 | Moderate |
| Coyote Well | Ranching | 19th - 20th C | Moderate | No | 1 | NA | 20a | Moderate |
| Stoddard Well | Trans./ Ranching | 1880s-20th C | Moderate | Yes | 1 | NA | 25 | Low |

Table 10-1 (continued)
Historical Resources Sensitivity

| Area | Theme | Dates | Historical Significance | Centerline Intensive Survey | Known Sites | Sites/ Mile | Link | Sensitivity |
|---|---|---|---|---|---|---|---|---|
| Quartz Mountain | Mining | 1914-1920s | Moderate | Parallels South | 3 | 1.0 | 32 | Low |
| Victorville Dump | Refuse Disposal | 20th C | Moderate | Yes | 1 | NA | 32, 33 | Low |
| Turner Springs/ Lanes | Mining/ Trans. | 19th & 20th C | High | Yes | 6 | 2.0 | 32 | Moderate |
| Mining Area A | Mining | 20th C | Moderate | Yes | 2 | 2 | 32, 33 | Moderate |
| Mining Area B | Mining | 1920s | Moderate | No | 3 | 1.5 | 27 | Moderate |
| Raven | Mining | 1940s | Low | No | 2 | 1.3 | 30 | Low |
| Wilds Crossing | Trans./ Mining | 19th - 20th C | Moderate | Parallels North | 3 | 2.0 | 24 | Moderate |
| Kramer Hills | Mining | 1920s | Moderate | No | 7 | 1.2 | 37 | Moderate |
| Kramer Junction | Trans. | 1930s | Low | No | 2 | 2 | 38 | Low |

## TABLE 10-2
## INVENTORY OF HISTORICAL RESOURCES

| Link No. | Length | Description[1] |
|---|---|---|
| 0 | 13.2 | Site location 90, Lincoln County Well, is east of the link. Nevada State Museum and Historical Society, 1977. |
| 1 | 16.6 | Site location 19, "Borax" a mine or place name, is along the link. McCullough Mountain, Nevada 15' Quad (1960). |
| 2 | 6.5 | Site location 20, roach siding/station, is west of the link. This site is recorded as 26Ck-2216. Hewett 1956:8; Roach Lake, Nevada 15' Quad (1955).<br>Site location 102, a 1930s can dump is east of the link. Greenwood 1979 (48-49). |
| 3 | 8.4 | Site location 20, Roach siding/station, is east of the link. This site is recorded as 26Ck-2216. Hewitt 1956:8; Roach Lake, Nevada 15' Quad (1955).<br>Site location 120, a purple glass scatter, is recorded as 26Ck-3044. Site Form. |
| 4 | 1.9 | Site location 20, Roach siding/station, is north of the link. This site is recorded as 26Ck-2216. Hewitt 1956:8; Roach Lake, Nevada 15' Quad (1955).<br>Site location 120, a purple glass scatter, is recorded as 26Ck-3044. Site Form. |
| 5a | 0.2 | No sites located along this link. |
| 5b | 4.8 | No sites located along this link. |
| 5c | 12.3 | Site location 22, old traction road used for hauling borax and other commodities in the late 19th century crosses link. Roach Lake, Nevada 15' Quad (1955). |

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[1] Link refers in this context to the centerline of the corridor.

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 5c (cont.) | | Site location 121, a stone wall structure, is recorded as SBr-4701. Site Form. |
| | | Desert Antimony Mine, site location 16. In operation during 1920s. California State Mineralogist 1930:204-205. |
| | | Site 116 is a shaft north of this link. Old Ivanpah, an 1860s-1890s mining camp, lies northwest. Clark Mountain, California-Nevada 15' Quad (1956). |
| 6 | 83.3 | Site location 21, a well, lies south. Yermo, California 7.5' Quad (1953). |
| | | Site location 18, a mine shaft, lies just north. A historic mine complex is recorded as SBr-3189. Clark Mountain, California-Nevada 15' Quad (1956). |
| | | Site location 17, a water tank, lies south. Clark Mountain, California-Nevada 15' Quad (1956). |
| | | Site location 15, a reservoir, is north of the link. Clark Mountain, California-Nevada 15' Quad (1956). |
| | | Kingston Valley Camp, site location 68, was a camp during 1934-35 Boulder Dam electric transmission line construction. Greenwood 1979:37,49. |
| | | Site location 26, a mining adit or tunnel, lies north of the link. Baker, California 15' Quad (1956). |
| | | Site location 27, the railroad grade of the Tonopah and Tidewater Railroad, crosses the link. Myrick 1963:545-555, 623-647. |
| | | Site location 59 was the site of Silver Lake camp, another transmission line construction camp from 1934-35. A trash scatter is recorded at this site as SBr-3747. Greenwood 1979:49. |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 6 (cont.) | | Site location 100 is a water tank just south of the link. Baker, California 15' Quad (1956). |
| | | Site location 86 is Black Gap, probably a stopping place for 19th century travelers. Weber 1914. |
| | | Site location 126, a mining operation, is recorded as SBr-4221. Site form. |
| | | Site location 127, a mining operation, is recorded as SBr-4222. Site form. |
| | | Site location 128, a mining operation, is recorded as SBr-4223. Site form. |
| 7 | 13.5 | Site location 85 is approximate spot where the miners who worked at the Copper World mine lived. Lies just south of link (1899-1920 period). Moon 1984; Weber 1914. |
| | | Site location 14 is the Valley Wells/Rosalie Cemetery site (1899-at least late 1920s). Just south of the link. Mescal Range, California 15' Quad (1955). |
| | | Site location 84 is approximately spot where Valley Wells Smelter and living quarters for workers were (1899-1920). Hewitt 1956:8; Weber 1914. |
| | | Site location 124 is a cemetery. Mescal Range, California 15' Quad (1955). |
| | | Site location 122, a smelter and mill site, is recorded as SBr-4888. Site form. |
| | | Site location 125, a tin can associated with other historic debris, is recorded as SBr-2973. Site form. |
| | | Site location 123, a graveyard, is recorded as SBr-4702. Mescal Range, California 15' Quad (1955). |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 8 | 12.9 | Site location 85, living site for Copper World Mine workers, is near this link. Moon 1984; Weber 1914. |
| | | Site location 13, the Mohawk Mine, operated during both world wars as well as the Korean War when demand for metals was high. California State Mineralogist 1920:363; Wright et.al., 1953:110. |
| | | Site location 94, Mescal Spring, is in this area. Bureau of Land Management n.d. |
| | | Site location 10, Valley Wells Station, the site of cattle ranching in 1920s, is south of the link. Hewett 1956:4,7,8; Moon 1984; Thompson 1929:602. |
| | | Site locations 11 and 12, a windmill and well, are south of the link. Baker, California 15' Quad (1955). |
| | | Site location 122, a smelter and mill site, is recorded SBr-4888. Site form. |
| | | Site location 125, a tin can associated with other historic debris, is recorded as SBr-2973. Site form. |
| | | Site location 123, a graveyard, is recorded as SBr-4702. Mescal Range, California 15' Quad (1955). |
| 9 | 25.0 | Site location 89, Yucca Grove townsite, was used as an ore processing location for the Telegraph Mine during the 1930s. California State Mineralogist 1943:462. |
| | | Site location 7 is a mine shaft. Halloran Springs 15' Quad (1956). |
| | | Site location 2 is an airway beacon in place by 1931. California State Mineralogist 1931:323. |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 9 (cont.) | | Site location 3 is the beacon powerhouse for western air express. In operation by 1931. California State Mineralogist 1931:323. |
| | | Site location 1 is the area where the Telegraph Group of mines is located. Discovered in 1930 and worked extensively during that decade. Shafts in the area probably relate to prospecting during that era. California State Mineralogist 1938:15-16; Wright et al. 1953:82. |
| | | Site location 101 is the Halloran Spring site. This was a 19th century stopping place, later used for watering cattle. Thompson 1929:571. |
| | | Site 8 is a group of buildings with an associated road. Halloran Springs, California 15' Quad (1956). |
| | | Site 9 is a group of buildings with an associated road. Halloran Springs, California 15' Quad (1956). |
| | | Site 25 is the site of Hallo, apparently a modern stopping place on the road to Nevada. Baker, California 15' Quad (1956). |
| | | Site 23 is the town of Baker. Originally a mining camp called Berry, it became a station on the Tonopah and Tidewater Railroad (1905-1943) and later became a main stopping place on the highway east. Gudde 1969:19; Hall et al. 1981:38; Thompson 1929:555. |
| | | Site 24 is the Aga Mine, which was basically a prospect and saw little production. Baker, California 15' Quad (1956). |
| | | Site location 123, a graveyard, is recorded as SBr-4702. Mescal Range, California 15' Quad (1955). |
| | | Site location 129, two arrastres, are recorded as SBr-2537. Site form. |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 9 (cont.) | | Site location 130, a stone-walled structure, is recorded as SBr-2538. Site form. |
| 10 | 19.9 | Site 4, a wind generator which lies north of the link. Halloran Spring, California 15' Quad (1956). |
| | | Sites 5 and 6, wells, lie north and south of the link. Halloran Springs, California 15' Quad (1956). |
| | | Site location 131, an ore arrastre, is recorded as SBr-4554. Site form. |
| | | Site location 123, a graveyard, is recorded as SBr-4702. Mescal Range, California 15' Quad (1955). |
| 11 | 20.5 | Site 28, the Tonopah and Tidewater Railroad Grade, crosses this link, as it does Link 12. Myrick 1963:545-555, 623-647. |
| | | Site location 138, a mining area, is recorded as SBr-3497. Site form. |
| 12 | 4.9 | Site 29, a gravel pit, lies near this link. Soda Lake, California 15' Quad (1956). |
| | | Site 88, a mining site, lies near this link. Automobile Club of Southern California 1943. |
| 13 | 10.6 | No sites located along this link. |
| 14 | 4.9 | Site 103, the Bradley Ranch House and 2 wells. Reported present in the 1920s. Thompson 1929:538, 543. |
| 15 | 5.0 | No sites located along this link. |
| 16 | 8.5 | Site 103, the Bradley Ranch House and 2 wells, lies near this link. Thompson 1929:538, 543. |
| | | Site 97 is a clay mine located north of this link. Wright et al. 1953. |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 17 | 5.3 | Site 30, the Baxter and Ballardie Marble and Limestone Quarries, which operated about 1914-1920s are located just south of this link. California State Mineralogist 1917:871-876; 1930:308. |
| 18 | 3.7 | Dunn and New Dunn (Poole), Sites 33 and 34, both lie close to this link. They are stations or sidings on the Union Pacific Railroad. Cave Mountain, California 15' Quad (1948). |
| 19 | 8.0 | No sites located along this link. |
| 20a | 21.0 | Site 46, Coyote Well, located one mile to the south. Cattle ranching and early homesteading in the area may have spilled over into transmission corridor. Lane Mountain, California 15' Quad (1948).<br>Site 144, the Barstow-Silver Lake Road, is crossed by this link. In use since 1905, the road ran from the Mojave River at Barstow through the Calico Mountains to Silver Lake and on to Death Valley. The road is recorded as SBr-4525. Site form. |
| 20b | 17.9 | No sites located along this link.<br>Site 51, Dry Well, is located near this link. Hinkley, California 7.5' Quad (1971). |
| 21a | 6.0 | No sites located along this link. |
| 21b | 8.0 | Sites 44 and 45, both wells, lie north and south of this link. Newberry, California 15' Quad (1955).<br>Site 40, Toomey (Kouns) a station or siding on Union Pacific Railroad lies south of this link. Newberry, California 15' Quad (1955).<br>Site 105, wells and canals for a 1910 irrigation project, is near this link. Thompson 1929:507-508. |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 21b (cont.) | | Site location 132, a historic trash dump, is recorded as SBr-4909. Site form. |
| 22 | 21.2 | Site 31 is a reported development on the Union Pacific Railroad south of this link, but could refer to Dunn and New Dunn lying to the east. California State Mineralogist 1931:263; Cave Mountain, California 15' Quad (1948). |
| | | Site location 132, a historic trash dump, is recorded as SBr-4909. Site form. |
| | | Site 32 is known as Midway, apparently a highway town on the Arrowhead Highway, lies just north of this link. Cave Mountain, California 15' Quad (1948). |
| | | Site 37 is a well, possibly associated with Harvard station on the Union Pacific Railroad. A section crew lived at Harvard during the 1920s. Newberry, California 15' Quad (1955). |
| | | Site 38 is a mining site on Harvard Hill north of the link. Newberry, California 15' Quad (1955). |
| | | Site 39 is a well located north of this link. Newberry, California 15' Quad (1955). |
| | | Site 40 is the station or siding on the Union Pacific known as Toomey (Kouns). Newberry, California 15' Quad (1955). |
| | | Site 35 is Field station or siding on the Union Pacific Railroad just south of this link. Thompson 1929:438; Alvord Mountain 15' Quad (1948). |
| | | Site 43, located about 1 mile south of this link is apparently the original site of Camp Cady. This was an important early stopping place from the exploration era onward. It was a military camp during the 1860s and a stamp mill site for the Alvord Mine during the 1880s. Casebier 1981:298; Weinman-Roberts 1980: 177-179. |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 22 (cont.) | | Site 42, located a little over 1 mile south of this link, was apparently the site of the second Camp Cady military fort (late 1860s-early 1870s). It later became a ranch. Weinman-Roberts 1980:179. |
| | | Site 105 consists of wells and canals for a 1910 irrigation project. Thompson 1929:507-508. |
| 23 | 13.8 | Site 104, the McCormick Ranch, reportedly existed east of this link during the 1920s. Thompson 1929:504-505. |
| | | Site 87, near this link, was approximately where Forks-of-the-road, an important early camping site, was located, later the site of Hawley's Station and mill. The Mitchell Ranch and "Headless Horseman" site is nearby (exact location unknown). California State Mineralogist 1888:500; Desert Dispatch May 3, 1972; Weber 1914. |
| | | Site 47 is a well located to the north this link. Yermo, California 7.5' Quad (1953). |
| | | Site 48 is a well with some associated development. Minneola, California 7.5' Quad (1971). |
| | | Site location 132, a historic trash dump, is recorded as SBr-4909. Site form. |
| | | Site location 133, a historic trash dump, is recorded as SBr-3170. Site form. |
| | | Site 49 is a well. Minneola, California 7.5' Quad (1971). |
| 24a | 27.3 | Site 53 is a well lying to the north of this link. Hodge, California 7.5' Quad (1971). |
| | | Site 63 is a series of long, industrial type buildings about north of this link. Wild Crossing, California 7.5' Quad (1973). |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 24a (cont.) | | Site 64 is a well located just north of this link. Wild Crossing, California 7.5' Quad (1973). |
| | | Site 65 is a station called Wild Crossing on the Santa Fe (formerly Southern Pacific) Railroad. It may also have even older associations. Wild Crossing, California 7.5' Quad (1973). |
| | | Site 66 is an area which has two borrow pits for gravel or rock mining. Wild Crossing, California 7.5' Quad (1973). |
| | | Site 36 is a well north of this link. Wild Crossing, California 7.5' Quad (1973). |
| | | Site 67 is also a well north of the link. Wild Crossing, California 7.5' Quad (1973). |
| | | Site 70 is a gravel pit. Wild Crossing, California 7.5' Quad (1973). |
| | | Site 69 is borrow pit. Wild Crossing, California 7.5' Quad (1973). |
| 24b | 6.1 | No sites were located on this link. |
| 25 | 11.7 | Site 50, about ½ mile south of this link is the Stoddard Well site, an early stopping place on the wagon road north through this area. Reportedly settled in 1880s. Moon 1984; Stoddard Well, California 7.5' Quad (1970). |
| 26 | 0.6 | No sites were located on this link. |
| 27 | 13.4 | Site 107, R.Z. Spring, lies south of this link. Turtle Valley, California 7.5' Quad (1970). |
| | | Site 99 is a mining site (shaft and prospect) shown on the USGS map. Helendale, California 7.5' Quad (1956). |
| | | Site 98 is a mining site (a shaft). Helendale, California 7.5' Quad (1956). |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 27 (cont.) | | Site 96 is the Gladding McBean Clay deposit. An open cut mine operated here during the 1920s, shipping clay to Los Angeles to be used in the manufacture of face brick. Dietrich 1928:195; Wright et al. 1953. |
| | | Site location 134, a mine shaft and structures, is recorded as SBr-3553. Site form. |
| | | Site 62 consists of two groups of buildings near this link. Helendale, California 7.5' Quad (1956). |
| 28 | 3.2 | Site 72 is a well located near this link. Victorville N.W., California 7.5' Quad (1956). |
| 29 | 2.1 | No sites were located on this link. |
| 30 | 2.1 | Site 74 is a group of mining prospects located to the west of this link. Victorville N.W., California 7.5' Quad (1956). |
| | | Site 75 is the Raven and Red Raven group of mines. These were lead, silver and zinc mines apparently operated in the 1940s. Wright et al. 1953; Victorville N.W., California 7.5' Quad (1956). |
| 31 | 5.7 | Site 76 is a well east of this link. Victorville N.W., California 7.5' Quad (1956). |
| 32 | 16.4 | Site 56 is a dry well west of the link. Turtle Valley, California 7.5' Quad (1970). |
| | | Site 92 is the quarry area for the Southwestern Portland Cement Company's Victorville Plant. This quarry was operated from 1916 on using steam shovels to quarry and the Mojave Northern Railroad to ship material for making cement. The railroad grade crosses both Links 32 and 33. California State Mineralogist 1917:859-860. |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 32 (cont.) | | Site 58 is another quarry area, perhaps associated with site 92, or perhaps with the gold and copper mines lying to the west. California State Mining Bureau 1902. |
| | | Site 60 is the Amazon Copper Mine, worked sometime prior to 1920. Wright et al. 1953. |
| | | Site 93 is the approximate location of Lanes, an early stop on the Mojave River route, in existence during 1850s and 1860s. There is a reservoir nearby. Belden 1963a; Weinman-Roberts 1980:181. |
| | | Site 61 is Turner Spring. Perhaps associated with Lanes, this place later became a ranch. Victorville, California 7.5' Quad (1956). |
| | | Site 108 is several water tanks. Victorville, California 7.5' Quad (1956). |
| | | Site location 135, a complex of habitation, mine tailings and debris, is recorded as SBr-3160. Site form. |
| | | Site location 136, a historic copper mine, is recorded as SBr-4930. Site form. |
| | | Site location 137, a historic trash dump, is recorded as SBr-3161. Site form. |
| | | Site location 138, a mining area, is recorded as SBr-3497. Site form. |
| 33 | 15.5 | Site 54 is a mine, apparently the RZ mine. Turtle Valley, California 7.5' Quad (1970). |
| | | Site 109 is a spring, perhaps associated with the RZ mine. Turtle Valley, California 7.5' Quad (1970). |
| | | Site 55 is a well, the Victorville construction camp for Boulder Dam powerline was in this area. Greenwood 1979:49; Turtle Valley, California 7.5' Quad (1970). |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 33 (cont.) | | Site 57 is the Victorville Land Dump. Victorville, California 7.5' Quad (1956). |
| | | Site 95 is the Leaky and Turner Granite Quarry, opened in the late 19th century. California State Mineralogist 1917:897; Wright et al. 1953:411-413. |
| | | Site 91 is the Oro Grande Quarries operated for granite paving blocks during the late 19th century. California State Mineralogist 1917: 897; Wright et al. 1953:411-413. |
| | | Site 41 is an area where several 1860s and 1870s irrigation ditches originated. Weinman-Roberts 1980:156. |
| | | Site location 135, a complex of habitation, mine tailings and debris, is recorded as SBr-3160. Site form. |
| | | Site location 136, a historic copper mine, is recorded as SBr-4930. Site form. |
| | | Site location 137, a historic trash dump, is recorded as SBr-3161. Site form. |
| | | Site location 138, a mining area, is recorded as SBr-3497. Site form. |
| 34 | 1.4 | No sites were located along this link. |
| 35 | 4.7 | No sites were located along this link. |
| 36 | 5.9 | Site 73 is a well. Victorville N.W., California 7.5' Quad (1956). |
| 37 | 7.3 | Site 78 is an area with mine shafts and possible structures. Probably 1920s era mining activity associated with the Kramer Hills gold rush of that decade. Belden 1963b; Kramer Hills, California 7.5' Quad (1973). |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 37 (cont.) | | Site 79 is an area with mine shafts and a prospect. Probably also 1920s era. Kramer Hills, California 7.5' Quad (1973). |
| | | Site 80 is another mine shaft and prospect area, probably 1920s era. Kramer Hills, California 7.5' Quad (1973). |
| | | Site 111 is another area with mining shafts, probably 1920s era. Kramer Hills, California 7.5' Quad (1973). |
| | | Site 112 is another area with mining shafts, probably 1920s era. Kramer Hills, California 7.5' Quad (1973). |
| 38 | 10.3 | Site 81 is a well just north of Kramer Junction. Kramer Junction, California 7.5' Quad (1973). |
| | | Site 82 is the 1930s era-to-present highway town of Kramer Junction. Kramer Junction, California 7.5' Quad (1973). |
| | | Site 83 is a borrow pit. Kramer Junction, California 7.5' Quad (1973). |
| 39 | 6.2 | Site 113 is two mining shafts, probably associated with 1920s Kramer Hills gold rush. Kramer Hills, California 7.5' Quad (1973). |
| | | Site 110 is a shaft, probably also 1920s era. Red Buttes, California 7.5' Quad (1973). |
| 40a | 6.2 | Site 77 is the Astley Rancho site. This may be associated with the development of Adelanto during the First World War era. Astley Rancho, California 7.5' Quad (1973). |
| 40b | 4.9 | No sites were located along this link. |
| 41 | 15.5 | No sites were located along this link. |

Table 10-2 (continued)
Inventory of Historical Resources

| Link No. | Length | Description[1] |
|---|---|---|
| 42 | 21.9 | Site 52 is a well. Hinkley, California 7.5' Quad (1971).<br>Site 71 is a well. Twelve Gauge Lake, California 7.5' Quad (1973).<br>Site 114 is several mining prospects, probably related to Kramer Hills gold rush, 1920s. Astley Rancho, California 7.5' Quad (1973).<br>Site 115 is a shaft, probably related to Kramer Hills gold rush, 1920s. Astley Rancho, California 7.5' Quad (1973).<br>Site 106 is a landing field. Astley Rancho, California 7.5' Quad (1973). |
| 44 | 16.2 | Site 39 is a mine shaft. Lane Mountain, California 15' Quad (1948).<br>Site 140 is a mine shaft. Lane Mountain, California 15' Quad (1948).<br>Site 141 is a well. Newberry, California 15' Quad (1955).<br>Site 142 is the old road from San Bernardino to Death Valley through Coyote Wells. The remaining dirt road bed is one of many in the area. Lane Mountain 15' Quad (1948).<br>Site 143 is the remains of a historic mining area which contains excavated pits, a tunnel, remnants of a possible structure and historic debitage. Recorded by WIRTH as LK 44-Tr7-3.<br>Site 144, the Barstow-Silver Lake Road, is crossed by this link. In use since 1905, the road ran from the Mojave River at Barstow through the Calico Mountains to Silver Lake and on to Death Valley. The road is recorded as SBr-4525. Site form. |
| 45 | 5.7 | No sites located along this link. |

# TABLE 10-3
# IMPACT ASSESSMENT/MITIGATION PLANNING CHART FOR HISTORICAL RESOURCES

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 13.5 | 0.0- 13.5 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 1 | 16.6 | 0.0- 16.6 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 2 | 1.9 | 0.0 - 1.9 | 2 | L- | - | Passes through area of of low site density. | - | - | - | - |
| 3 | 8.4 | 0.0 - 6.7 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
|  |  | 6.7 - 7.2 | 2 | M- | - | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
|  |  | 7.2 - 8.4 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 4 | 1.9 | 0.0 - 1.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 5a | 0.2 | 0.0 - 0.2 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 5b | 4.8 | 0.0 - 4.8 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 5c | 12.3 | 7.6 - 9.0 | 2 | M+ | - | Passes through area of moderated sensitivity; new access required. | - | - | - | - |
|  |  | 9.0- 10.3 | 2 | M- | - | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
|  |  | 10.3-12.3 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 6 | 83.3 | 0.0- 13.7 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
|  |  | 13.7-14.1 | 2 | M- | - | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
|  |  | 14.1-39.0 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 (cont.) | | 39.0-47.5 | 2 | L | - | Passes through area of minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 47.5-83.3 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 7 | 13.5 | 0.0 - 1.3 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 1.3 - 2.6 | 2 | M+ | - | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 2.6 - 5.4 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 5.4 - 6.5 | 2 | H+ | - | Passes through area of high sensitivity; new access required. | - | - | - | - |
| | | 6.5- 13.2 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

able 10-3 (continued)
npact Assessment/Mitigation Planning Chart
or Historical Resources

| ink umber | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 (cont.) | | 13.2-13.5 | 2 | M- | - | Passes through area of minimal sensitivity; new access required. | - | - | - | - |
| 8 | 12.9 | 0.0 - 1.1 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 1.1 - 3.7 | 2 | M- | - | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 3.7- 12.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 9 | 25.0 | 0.0 - 2.0 | 2 | L+ | - | Passes through area of minimal sensitivity; requires access upgrade. | - | - | - | - |
| | | 2.0 - 3.1 | 2 | M- | - | Passes through area of minimal sensitivity; requires new access. | | | | |
| | | 3.1- 20.0 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

able 10-3 (continued)
npact Assessment/Mitigation Planning Chart
or Historical Resources

| ink umber | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| (cont.) | | 20.0-23.0 | 2 | M- | - | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 23.0-25.0 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 10 | 19.9 | 0.0 - 1.7 | 2 | M- | - | Passes through area of minimal sensitivity; new access required. | - | - | - | - |
| | | 1.7- 19.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 11 | 20.5 | 0.0- 20.5 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 12 | 4.9 | 0.0 - 3.0 | 2 | M+ | - | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 3.0 - 4.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 10.6 | 0.0- 10.6 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 14 | 4.9 | 0.0 - 0.4 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 0.4 - 0.8 | 2 | M- | - | Passes through area of minimal sensitivity; new access required. | - | - | - | - |
| | | 0.8 - 4.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 15 | 5.0 | 0.0 - 5.0 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 16 | 8.6 | 0.0 - 8.6 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 17 | 5.3 | 0.0 - 1.0 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 1.0 - 1.7 | 2 | M+ | - | Passes through area of moderate sensitivity; new access required. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 17 (cont.) | | 1.7 - 5.3 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 18 | 3.7 | 0.0 - 2.2 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 2.2 - 3.7 | 2 | L+ | - | Passes through area of minimal sensitivity; requires access upgrade. | - | - | - | - |
| 19 | 7.9 | 0.0 - 7.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 20a | 21.0 | 0.0- 21.0 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 20b | 17.9 | 0.0- 17.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 21a | 6.0 | 0.0 - 6.0 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 21b | 8.0 | 0.0 - 6.7 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 21b (cont.) | | 6.7 - 8.0 | 2 | H- | - | Passes through area of high sensitivity; existing access sufficient. | - | - | - | - |
| 22 | 21.1 | 0.0 - 2.8 | 2 | L+ | - | Passes through area of minimal sensitivity; requires access upgrade. | - | - | - | - |
| | | 2.8 - 5.1 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 5.1 - 5.9 | 2 | L+ | - | Passes through area of minimal sensitivity; requires access upgrade. | - | - | - | - |
| | | 5.9- 19.8 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 19.8-21.1 | 2 | H | - | Passes through area of high sensitivity; requires access upgrade. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 13.8 | 0.0 - 1.0 | 2 | H- | - | Passes through area of high sensitivity; existing access sufficient. | - | - | - | - |
| | | 1.0- 13.8 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 24a | 27.3 | 0.0- 18.1 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 18.1-19.5 | 2 | M+ | - | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 19.5-27.3 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 24b | 6.1 | 0.0 - 6.1 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 25 | 11.7 | 0.0 - 9.3 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 25 (cont.) | | 9.3 - 9.9 | 2 | L | - | Passes through area of minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 9.9- 11.7 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 26 | 0.6 | 0.0 - 0.6 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 27 | 13.4 | 0.0 - 7.0 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 7.0 - 9.0 | 2 | M+ | - | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
| | | 9.0- 13.4 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 28 | 3.2 | 0.0 - 3.2 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 29 | 2.1 | 0.0 - 2.1 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 30 | 2.1 | 0.0 - 1.4 | 2 | L | - | Passes through area of minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 1.4 - 2.1 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 31 | 5.7 | 0.0 - 5.7 | 2 | L- | - | Passes thorugh area of low site density. | - | - | - | - |
| 32 | 16.4 | 0.0 - 4.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 4.9 - 6.0 | 2 | M- | - | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 6.0- 14.0 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 14.0-15.9 | 2 | M- | - | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| | | 15.9-16.4 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 33 | 15.5 | 0.0- 15.5 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 34 | 1.4 | 0.0 - 0.6 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
|  |  | 0.6 - 0.9 | 2 | M- | - | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
|  |  | 0.9 - 1.4 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 35 | 4.7 | 0.0 - 4.7 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 36 | 5.8 | 0.0 - 5.8 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 37 | 7.3 | 0.0 - 1.5 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
|  |  | 1.5 - 7.3 | 2 | M+ | - | Passes through area of moderate sensitivity; new access required. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 38 | 10.3 | 0.0 - 4.0 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 4.0 - 4.2 | 2 | L | - | Passes through area of minimal sensitivity; existing access sufficient. | - | - | - | - |
| | | 4.2 - 9.3 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| | | 9.3- 10.3 | 2 | M- | - | Passes through area of moderate sensitivity; existing access sufficient. | - | - | - | - |
| 39 | 6.2 | 0.0 - 0.7 | 2 | M- | - | Passes through area of moderate sensitivity existing access sufficient. | - | - | - | - |
| | | 0.7 - 6.2 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 40a | 6.2 | 0.0 - 6.2 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 40b | 4.9 | 0.0 - 4.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

Table 10-3 (continued)
Impact Assessment/Mitigation Planning Chart
For Historical Resources

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 41 | 15.5 | 0.0- 15.5 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 42 | 21.9 | 0.0- 21.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 43 | 3.9 | 0.0 - 3.9 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 44 | 16.2 | 0.0 - 6.3 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
|  |  | 6.3 - 7.0 | 2 | $M^+$ |  | Passes through area of moderate sensitivity; new access required. | - | - | - | - |
|  |  | 7.0- 16.2 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |
| 45 | 5.7 | 0.0 - 5.7 | 2 | L- | - | Passes through area of low site density. | - | - | - | - |

# CHAPTER 11
# ETHNOLOGY

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APPENDIX A - ALTERNATIVE CORRIDOR ASSESSMENT ETHNOGRAPHIC RESOURCE INVENTORY Confidential Document

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# CHAPTER II
# ETHNOLOGY

## INTRODUCTION

This report provides a brief overview of the ethnography and ethnohistory of the traditional occupants of the study area and an inventory of ethnographic (Native American) resources located within the Mead/McCullough-Victorville/Adelanto alternative corridor system. The overviews are provided first. The inventory developed from an existing data base and a supplementary review of the major relevant literature sources is then described. The existing data base was generated from a number of previous environmental investigations conducted in the same or similar study area. These previous investigations are described below. The intent was to provide an adequate assessment of the ethnographic research base without duplicating work which has already been well done. In this regard, the present investigators are particularly appreciative of the exhaustive research previously conducted in the study area by Lowell J. Bean, Sylvia B. Vane and their associates at Cultural Systems Research, Inc. (CSRI). We are also indebted to David White of Southern California Edison and Ed Weil of Applied Conservation Technology, Inc. for providing copies of the CSRI reports and other useful information.

## STUDY AREA OVERVIEW

### Introduction

A number of aboriginal Native American tribes incorporated portions of the study area within their traditional range. They include the Southern Paiute and Chemehuevi in southwestern Nevada who expanded west into the California desert; the Mojave who extended their subsistence range well into the Mojave Desert from their heartland along the Colorado River; the Serrano and Vanyume who ranged and occupied the central and western portions of the study area including the Baker, Barstow and Victorville regions; and the Kawaiisu who probably travelled to use resources in the western part of the study area from their homeland in the North. It should be pointed out, however, that the exact boundaries of the Serrano/Vanyume, and particularly the Kawaiisu, have not been precisely ascertained. General ethnic boundaries, as described by ethnographers familiar with these groups, are shown in Figure II-1. Territorial boundaries are discussed in more detail in each overview. The Southern Paiute, Chemehuevi and Mojave materials provided below are taken in large part from Woods (1983). The Serrano, Vanyume and Kawaiisu overviews were prepared specifically for this report from existing ethnographic information.

### Southern Paiute and Chemehuevi

The Numic-speaking Southern Paiute and Chemehuevi occupied a crescentic region extending from southeastern Utah and northwestern Arizona, south-westward to the deserts of southeastern California and southern Nevada (Euler 1972:6). The Chemehuevi, today formally recognized as a separate tribe, are generally classified by anthropologists as the southwesternmost branch of the Southern Paiute (Bean and Vane 1978:5-19; Euler 1972:17; Kroeber 1976:593). Both linguistically and culturally, the Chemehuevi were indistinguishable from other Southern Paiute bands in aboriginal times.

### Sources

Ethnographic descriptions of the southern Paiute and Chemehuevi are not abundant. The nomadic lifestyle and small populations undoubtedly contributed to the sparse ethnographic accounts. Early explorer accounts (Bolton 1950; Coues 1900; Euler 1966:31-96) provide some glimpses of aboriginal life. Standard ethnographic sources include Fowler and Fowler (1971), Kelly (1934, 1964), Kroeber (1953, 1976), Steward (1938) and, more recently, Manners (1974). Additional sources on the Southern Paiute include Euler (1966, 1972), Hopkins (1965), and Roth (1976) for ethnohistory, Kelly (1939) for shamanism and Lamb (1958) for linguistics. Manners (1957), Morgan (1953) and Stuart (1945) address agriculture and subsistence. Chemehuevi language, mythology and lifeways are discussed by Laird (1974, 1976). Scattered historical information can be found in Beattie and Beattie (1951), Casebier (1973, 1974, 1975), Mollhausen (1858), Sullivan (1934) and Whipple (1856). Much of this material has been pulled together in an overview format by Bean and Vane (1978, 1979, 1982a, 1982b).

### Territory

At the time of historic contact (1776), the Southern Paiute were occupying the plateaus and canyonlands of southeastern Utah, northeastern Arizona and the desert regions of southern Nevada and southern California. Prior to the nineteenth century, it is believed that the Chemehuevi were primarily limited to territory to the north and west of the Colorado River. According to Kroeber (1976:594) Chemehuevi territory "commenced in the Kingston Range, south of Death Valley . . . and stretched southward through the Providence Mountains . . . to about the boundary of Riverside and Imperial Counties. Roughly, this is the eastern half of the Mohave Desert." Laird notes that one of the last High Chiefs of the Teeranewewe (Desert Chemehuevi) was Tukupera whose band used the area around Daggett (Laird 1976, cited in King and Casebier 1981:6). It seems, however, that by the early nineteenth century, and certainly by the 1850s, the Chemehuevi had settled along the Colorado River in traditional Mojave territory (Kroeber 1976:593-595; Roth 1976:104), primarily in the Chemehuevi Valley but also on Cottonwood Island and in the Palo Verde Valley.

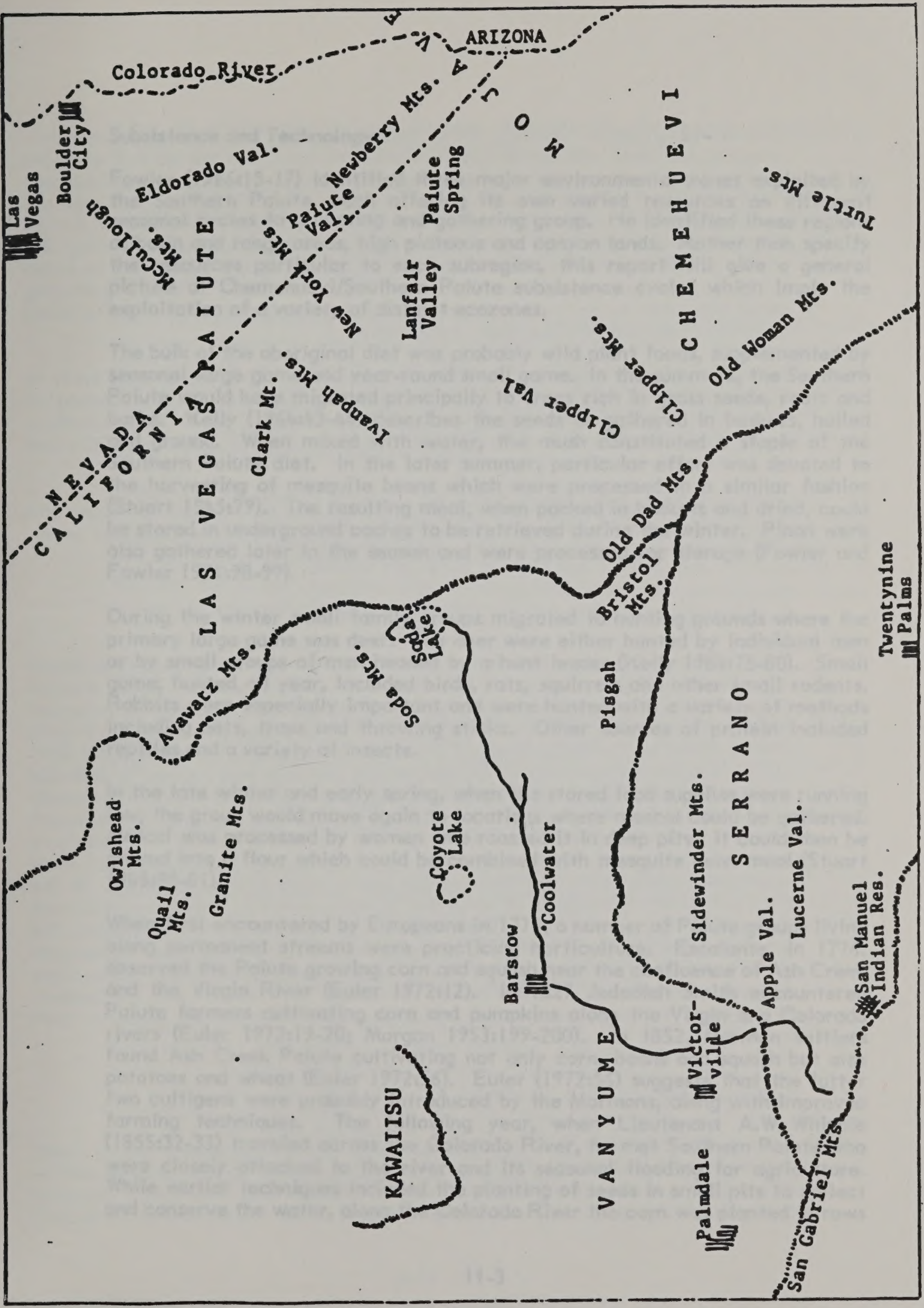
ARIZONA
Colorado River
Boulder City
Las Vegas
Eldorado Val.
McCullough Mts.
Newberry Mts.
Paiute Val.
New York Mts
Paiute Spring
MOJAVE
CHEMEHUEVI
Turtle Mts.
Lanfair Valley
Ivanpah Mts
Clark Mt.
Clipper Val
Clipper Mts.
Old Woman Mts.
NEVADA
CALIFORNIA
LAS VEGAS PAIUTE
Old Dad Mts.
Bristol Mts.
Soda Lake
Soda Mts.
Avawatz Mts.
Twentynine Palms
Pisgah
SERRANO
Owlshead Mts.
Granite Mts.
Quail Mts.
Coyote Lake
Coolwater
Barstow
Sidewinder Mts.
Lucerne Val.
Apple Val.
San Manuel Indian Res.
Victorville
Palmdale
VANYUME
KAWAIISU
San Gabriel Mts.

Figure 11-1. Ethnographic Boundaries as Described by Ethnographers (Kroeber 1925; Kelly 1934; Laird 1976; Bean and Smith 1978). Reprinted from Bean and Vane (1982a) with permission of SCE.

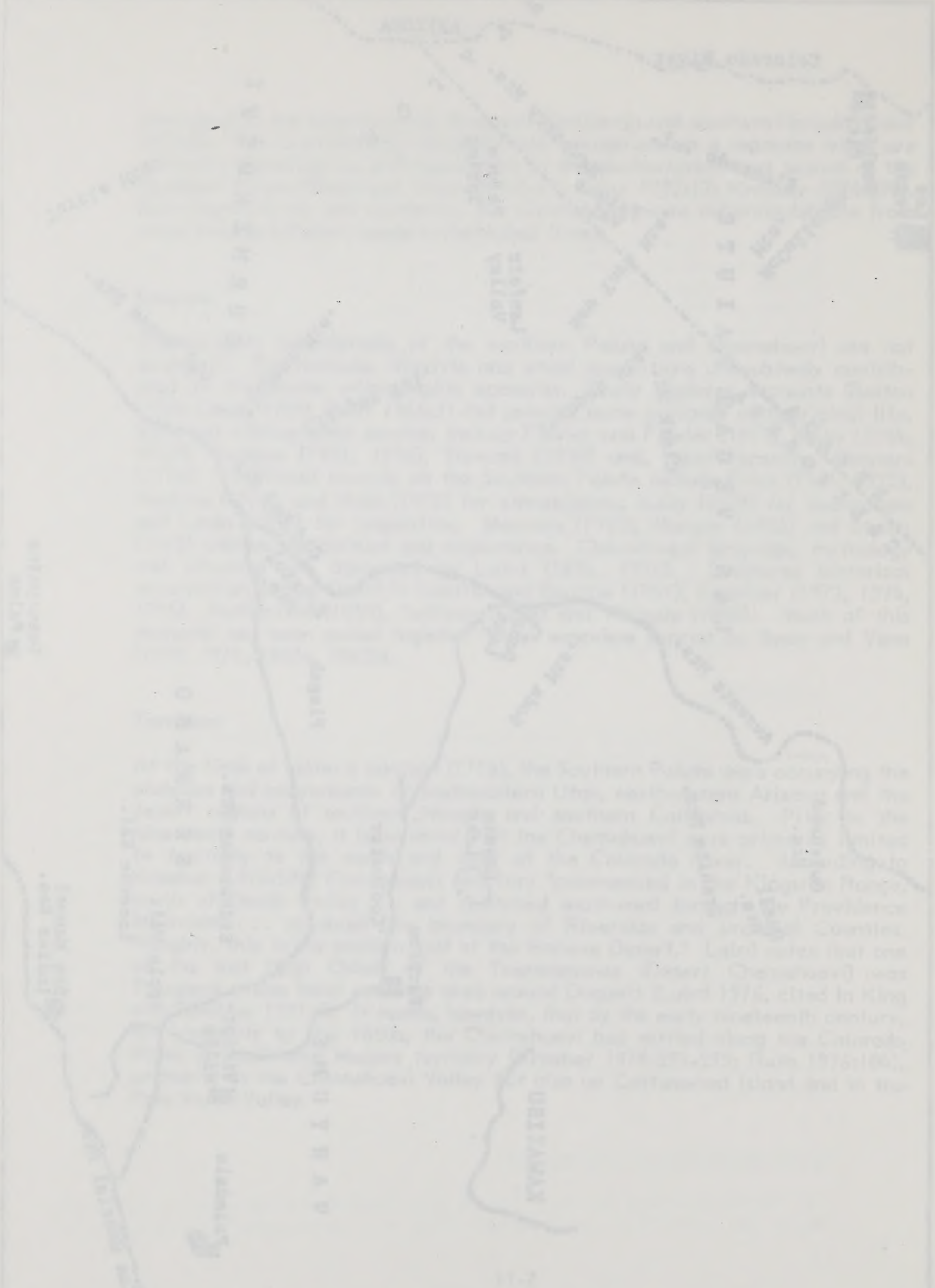

Figure 11-1. Ethnographic Boundaries as Described by Ethnographers (Kroeber 1925; Kelly 1934; Laird 1976; Bean and Smith 1978). (Reprinted from Bean and Vane (1982a) with permission of SCE.

## Subsistence and Technology

Fowler (1966:15-17) identified three major environmental zones exploited by the Southern Paiute, each offering its own varied resources on different seasonal cycles to a hunting and gathering group. He identified these regions as basin and range areas, high plateaus and canyon lands. Rather than specify the resources particular to each subregion, this report will give a general picture of Chemehuevi/Southern Paiute subsistence cycles which imply the exploitation of a variety of distinct ecozones.

The bulk of the aboriginal diet was probably wild plant foods, supplemented by seasonal large game and year-round small game. In the summers, the Southern Paiute would have migrated principally to areas rich in grass seeds, roots and barks. Kelly (1964:43-44) describes the seeds as gathered in baskets, hulled and ground. When mixed with water, the mush constituted a staple of the Southern Paiute diet. In the later summer, particular effort was devoted to the harvesting of mesquite beans which were processed in a similar fashion (Stuart 1945:79). The resulting meal, when packed in baskets and dried, could be stored in underground caches to be retrieved during the winter. Pinon were also gathered later in the season and were processed for storage (Fowler and Fowler 1971:98-99).

During the winter small family groups migrated to hunting grounds where the primary large game was deer. The deer were either hunted by individual men or by small groups of men headed by a hunt leader (Kelly 1964:75-80). Small game, hunted all year, included birds, rats, squirrels and other small rodents. Rabbits were especially important and were hunted with a variety of methods including nets, traps and throwing sticks. Other sources of protein included reptiles and a variety of insects.

In the late winter and early spring, when the stored food supplies were running low, the group would move again to locations where mescal could be gathered. Mescal was processed by women who roasted it in deep pits. It could then be ground into a flour which could be combined with mesquite bean meal (Stuart 1945:80-81).

When first encountered by Europeans in 1776, a number of Paiute groups living along permanent streams were practicing horticulture. Escalante, in 1776, observed the Paiute growing corn and squash near the confluence of Ash Creek and the Virgin River (Euler 1972:12). In 1827 Jedediah Smith encountered Paiute farmers cultivating corn and pumpkins along the Virgin and Colorado rivers (Euler 1972:19-20; Morgan 1953:199-200). In 1852, Mormon settlers found Ash Creek Paiute cultivating not only corn, beans and squash but also potatoes and wheat (Euler 1972:56). Euler (1972:56) suggests that the latter two cultigens were probably introduced by the Mormons, along with improved farming techniques. The following year, when Lieutenant A.W. Whipple (1855:32-33) traveled across the Colorado River, he met Southern Paiute who were closely attached to the river and its seasonal flooding for agriculture. While earlier techniques included the planting of seeds in small pits to collect and conserve the water, along the Colorado River the corn was planted in rows on small hills (Kelly 1964:40). Kelly describes other techniques such as intercropping sunflower and squash between the corn rows, and the tending of fields (weeding and pest control) by both men and women. Not all of the Southern Paiute adopted or depended on agriculture (Steward 1938:53). Those who did could trade their cultivated foods for the wild foods of the nomadic bands. Even those who did farm could still migrate to hunting grounds during the winter months, carrying and storing cultivated produce. According to Laird (1976:4), the Chemehuevi "continued to travel from place to place, gathering seeds and other foods in their seasons, following the great herds of game" even after their adoption of floodplain agriculture.

Manners (1974:74) asserts that "it is unlikely that farming was ever basic to Southern Paiute economy." Even among the Chemehuevi, who moved in historic times to a more favorable location (in terms of farming), horticulture was relatively unimportant compared with hunting and gathering (Kroeber 1976:597; Manners 1974:75).

Chemehuevi dwellings included brush-thatched and earth-covered houses and shades. The Southern Paiute constructed circular, pole-framed, bark or grass-covered winter dwellings, as well as summer shades.

## Social Organization

There is some debate as to whether the Chemehuevi or Southern Paiute should actually be called a tribe at all (Manners 1957:180), since they were aboriginally and historically a loose aggregation of autonomous nuclear and extended families and bands. Although Kelly (1934:550) grouped the Southern Paiute into 15 bands on the basis of slight linguistic differences, Steward's (1938:230-237) ecological explanation of dispersion and seasonal regroupings is probably the more satisfactory. As with many transhumant peoples, the nuclear family was probably not only the primary subsistence unit but the only "permanent" unit of social organization. Although the Southern Paiute did aggregate seasonally, especially in the fall for a large "festival," the demands of their subsistence cycle restricted the size and permanence of any groupings. A few semi-permanent gatherings of extended families seem to have existed around spring and water sources. The majority of Southern Paiutes before the adoption of agriculture, however, aggregated only rarely for specific subsistence tasks such as large rabbit hunts or for short-lived social gatherings. According to Laird (1976:26), the Cry (mourning ceremonies) and the Gathering "were the two occasions upon which the Chemehuevi came together from far and near."

## Religion and Ritual

Among the Southern Paiute, dreams were very important. Songs were acquired during dreams. There was a strong belief in ghosts and spirits. Although the function of shamans was to cure illness, malevolent shamans could also bring about sickness (Kelly 1964:141-142). Native religious beliefs were no doubt affected by Mormon missionaries who began proselytizing among the Southern Paiute as early as 1854 (Euler 1972:62).

The Chemehuevi system shows striking similarities to religious beliefs held among other Colorado River tribes. They too emphasized the power of dreams, and the importance of funeral ceremonies. In contrast to the Mojave, however, the individual established a personal relationship to a specific spirit from which he drew his power.

The Chemehuevi had a large body of oral literature consisting both of myths and songs. Shamans, whose primary function was the cure of disease, acquired spirit-animals who became "familiars" and assisted them in their work. The acquisition of a familiar came about through persistent dreaming or through visiting a sacred cave. A specific song became associated with their personal spirit. Other songs, such as the Deer and Mountain Sheep songs, served to guide hunters over their hunting ranges.

In the late nineteenth century, the Chemehuevi were much influenced by the Ghost Dance, which they incorporated into their religious system along with strong traces of Mormon influence. The Ghost Dance, brought by Missionaries from the north, was danced beginning in 1889 and 1890 (Laird 1976:44-45). It involved the belief that only those Native Americans who participated would survive an impending holocaust in which all non-Indians would perish.

## Life Cycle

The life cycle of the Chemehuevi bears strong resemblance to that of the Mojave. Childbirth was surrounded by a series of dietary taboos. The pregnant woman was secluded in a menstrual hut, or a specially constructed hut, attended only by midwives and perhaps a shaman if she were having difficulty. She was placed on a "hot bed" which consisted of hot stones covered with hides. Southern Paiute practices were similar.

Children were nursed until two years of age, at which time they were not only weaned but toilet trained. Among the Chemehuevi and Southern Paiute, young girls underwent a puberty ceremony very similar to the rituals surrounding childbirth. They were confined to menstrual huts, avoided the eating of meat and the drinking of cold water, and lay in the "hot bed." Marriage was informal and was not allowed between consanguineal kin.

Among the Southern Paiute, "only a chief received true burial" (Kelly 1964:95). Most corpses were placed in rock shelters and covered with rocks. The remains of reviled individuals, however, were cremated. Personal property was placed with the body, and the deceased's dwelling was torn down. The Chemehuevi buried their dead. At mourning ceremonies, or Cries, held as much as a year after the funeral, the property of the deceased was cremated. These gatherings tended to be held in early autumn when food was plentiful and when distant families could gather together.

## History

The Southern Paiute were first encountered in 1776 by the Escalante expedition. Beginning with Jedediah Smith in 1826-1827, Euroamerican trappers and traders frequently crossed the territory of the Southern Paiute. The Old Spanish Trail was the scene of annual merchant caravans between 1831 and 1848 (Euler 1966:43, 97; 1972:13, 33). This trail was later used by immigrants to California and by John C. Fremont. In addition to contact with Euroamerican explorers, trappers and traders, the Southern Paiute experienced the incursion of slave-trading parties from the contact period to as late as the 1850s.

In 1855, the Mormons established the Las Vegas Mission (abandoned two years later) and in the 1860s they moved into the area along the Colorado River. The Southern Paiute way of life was further disrupted by the development of transportation along the Colorado River. By the 1880s, many Paiute had abandoned their former way of life to settle around Anglo towns (U.S. Department of Commerce 1974:315).

In 1873, a reservation was set aside at Moapa, Nevada, for Paiute seeking refuge from further encroachment by whites (Euler 1972:28). In the twentieth century, two additional reservations were established, the Kaibab Reservation (1907) in northern Arizona, and the Las Vegas Colony (1911) near Las Vegas (U.S. Department of Commerce 1974:315; Walker and Bufkin 1979:43). A fourth reservation, the Shivwits Reservation, near St. George, Utah, lacks Federal recognition.

In 1776, the Chemehuevi were visited by Father Garces (Kroeber 1976:593). Jedediah Smith crossed Southern Paiute and Chemehuevi territory in 1826-1827. He was followed by numerous trappers and traders over the next decade (Euler 1966). Beginning in the 1850s, the Chemehuevi had significant contact with Euroamericans. An emigrant road was built in northern Arizona across the Colorado at Mojave Valley. By the 1860s, an influx of miners had traveled this road. Although some of the Chemehuevi were still nomads through the 1870s, others had settled more permanently along the rivers at Palo Verde and Chemehuevi Valley and on Cottonwood Island. Some had settled near Fort Mojave or had begun wage work on the railroad.

The gradual loss of their agricultural fields throughout the 1870s forced some Chemehuevi to occasionally reside on the reservation at Parker (Roth 1977:276). This, combined with smallpox epidemics in the late 1870s, contributed to a drastic reduction in their population (Morford 1876:1-3). Although they agreed to settle on the Colorado River Reservation in 1880 after the turmoil created by the Calloway Affair (Roth 1977:278-280), by 1885 they had left to go back to the Chemehuevi Valley (Stewart 1968:18). They remained there, and had limited contact with European settlers, until the early twentieth century. In 1907, land was set aside in California for the Chemehuevi, but it was too arid to support them. In 1912, much of the reservation was inundated by the formation of Lake Havasu, and the remaining Chemehuevi were forced to disperse (U.S. Department of Commerce 1974:94).

In the 1950s the Indian Claims Commission ruled that 3.6 million acres of Chemehuevi land had been taken and a judgment award was placed in trust for the tribe. The Chemehuevi Tribe was formally recognized in the 1960s. As of 1972 the population of the 28,233 acre Chemehuevi Reservation in Chemehuevi Valley was 32 (U.S. Department of Commerce 1974:94). The tribe has been actively involved in developing a campground, mobile home park, bait farm and other small tribal enterprises on their reservation.

## Mojave

The name Mojave, given to the group who lived aboriginally along the lower Colorado River, is thought to have originally been "Aha macava" or "people who live along the river." Although there is some dispute regarding how early the Mojave inhabited this territory, some archaeological evidence places them in this area as early as A.D. 900 (Schroeder 1952:55). By the time of first contact with the Spaniards, however (perhaps as early as 1540 but certainly by 1604), the Mojave were recognized as the group occupying the Mojave Valley.

### Sources

Despite their importance in California and the Southwest, the Mojave have not been accorded full ethnographic treatment. Kroeber (1948, 1951, 1972, 1973, 1976) remains the basic source with other general ethnographic information available in the works of Curtis (1908), King and Casebier (1981), Scrivner (1970), and Spier (1933). Harrington's field notes (n.d.) are also useful. Specialized treatments of Mojave sociopolitical organization are provided by Sherer (1965, 1966, 1967); agriculture by Castetter and Bell (1951); ritual and warfare by Fathauer (1954), Kroeber and Kroeber (1973) and Stewart (1947); and ethnopsychiatry by Devereux (1939). Stewart (1969a, 1969b) is the best source of Mojave ethnohistory with additional information in Forbes (1965). Data derived primarily from historical sources are available in Battye (1940), Coues (1900), Lesley (1929), Myrick (1963), Rose (1959), Sitgreaves (1853), and Whipple (1856). Bean and Vane (1978, 1979, 1982a, 1982b) have compiled a considerable amount of ethnographic, ethnohistoric and historic material for the Mojave and neighboring groups to the north and west. A review article on the Mojave in the long awaited Volume 10 (Southwest) of the Handbook of North American Indians (Stewart 1983) was acquired too late to incorporate into this report.

### Territory

The region of core Mojave occupation as described by Kroeber (1953:1) extended on both sides of the lower Colorado River from south of Davis Dam to Topock. This area of habitation may have stretched further north to include Cottonwood Island, although the Chemehuevi are known to have occupied this island by the nineteenth century (Kelly 1934:556-557). To the south of the Mojave Valley, the river passes through rugged canyons unsuitable for occupation, but the Mojave lived for a time in the Chemehuevi and the Colorado valleys (Stewart 1969a:265-268).

Despite this rather limited zone of actual occupation, the Mojave range undoubtedly extended far beyond in search of wild foods, trade and warfare. Their knowledge and use of trails through the Mojave Desert and western Arizona was extensive. Garces reported meeting a group of 80 Mojaves going down through the desert to the Yuma in 1776 (Coues 1900:230-232). Kroeber (1953:5) has placed the western boundary of Mojave territory in the mountains to the west of the Colorado (the Dead Mountains, Sacramento Mountains, Mohave Range, and the Chemehuevi Mountains). He located their eastern boundary in the Black Mountains.

Accounts of Mojave trade and warring expeditions, however, place them as far north as the Great Basin, west to the Pacific Ocean, south to Yuma, southwest to Gila Bend and east into the Hopi area (Kroeber 1953:7-8). They were well known for their extensive sojourns (as far as the Pacific Coast) as well as for their military prowess. Much of Mojave territory figures in their oral tradition, especially through the medium of songs.

### Subsistence and Technology

Mojave subsistence depended to a significant degree on the cultivation of food crops in the floodplains of the Mojave Valley. As early as 1604 when Don Juan de Onate visited the Mojave area at the mouth of the Bill Williams River (Kroeber 1953:3-4), he traded with the Mojave for corn, beans and squash. Although the date of the introduction of wheat cannot be specified, there are indications that it may have been as early as the sixteenth century (Castetter and Bell 1951:123); it was a major cultigen by the nineteenth century (Sitgreaves 1853:18).

The floodplains of the Colorado River provided a fertile area for agriculture in an otherwise arid environment (5-10 inches annual rainfall). The ground was annually silted by floods, and when the water receded in July, seeds were planted with a planting stick (Castetter and Bell 1951:146). Little further work was necessary until harvest. According to Castetter and Bell (1951:74) these crops constituted an estimated 50 percent of Mojave subsistence but were dependent on adequate flooding.

The Mojave supplemented their diet, especially in drought years, with a great variety of wild plants, game and fish. The primary plant food was the mesquite bean, harvested in the summer months by women. A variety of wild seed plants and roots were also harvested, and greens and fruits were collected seasonally (Castetter and Bell 1951:179-211).

Small game were hunted throughout the year while larger game were stalked by small parties of 10 to 12 men during the winter months (Stewart 1947:80-84). The bow and arrow were used on such large game as mountain sheep and black-tailed deer, while a throwing stick was used for rabbits. Rabbit drives and traps were also used. Other small game included ground squirrel, chipmunk, raccoon, rat and beaver. Some animals, such as wildcats, were hunted for their hides rather than meat. Deer hunting was surrounded by considerable ritual and was not pursued by all Mojave men.

Fish were also extensively exploited, but were captured primarily with limited equipment as the flood waters receded. A variety of nets and scoops were used in the shallow waters of the Colorado. Containers made of clay and woven baskets were used for storing and preparing food. Potters also manufactured fetishes and toys. Various fibers were woven for diverse material items.

It is clear from this brief description of Mojave subsistence that theirs was a mixed economy, flexible to annual variations in flooding and rainfall, and thus to availability of both good farmland and wild plants and animals. When combined with trade goods and raiding, the Mojave system survived well into the nineteenth century.

Mojave dwellings were rectangular structures with log and pole framework and arrowweed thatch. Prominent individuals built large houses in which large groups of people slept. Sweathouses were not constructed.

### Social Organization

One of the earliest accounts of Mojave social organization is that of Whipple (1856:17) who noted five "chiefs" among the Mojave, each of whom was the leader of a group of 50 to 100 people. He may, however, have been seeing ephemeral groups gathered for specific purposes such as warfare.

The Mojave separated their nation into three divisions: north, central, and south. Each of these subgroups had at least one hereditary chief. Additionally, there was a great chief who presided over the entire Mojave nation. Other high ranking people included the war chiefs, ritual and ceremonial personages and shamans (Bean and Vane 1982a:4-2, 3).

Evidence suggests that small family groups operated as the primary subsistence unit for both agriculture and hunting and gathering. Farmland seems to have been owned by specific extended families and boundary disputes have been recorded (Kroeber 1976:744-745). These families left the floodplains together in January to plant on higher ground and to hunt together as a group. Certain wild resources such as mesquite trees were considered the property of family groups, and their permission was required to harvest the beans.

### Religion and Ritual

As Kroeber (1976:755) asserted, "dreams are the foundation of Mohave life, and dreams throughout are cast in a mythological mold." Dreaming, and the power derived from it, seems to have played a crucial role not only in Mojave warfare, but in religion and social organization as well. This aspect of their religion aligns them with most of the other Colorado River tribes.

Preparations for war and ceremonies after war were times of considerable religious significance. When warfare was imminent, the war leaders, the scalper, and the custodian of the scalps all took on the status of major religious figures. Upon success at war, a large feast was held in which dancers and singers encircled the speared scalps taken in battle.

Shamans also derived their power from dreams. They could be both good and evil although Fathauer's (1954:104-105) informants considered them as more often evil. One of the war leaders--the scalper--also took a shamanistic role in curing people of "enemy sickness" caused by intimate contact with foreigners.

The Mojave held strong beliefs in an afterlife. After death, the soul was thought to undergo several metamorphoses. Articles of the deceased burned in the funeral pyre were thought to accompany the spirit to the next world (Curtis 1908:58-59).

### Life Cycle

Women seem to have begun childbearing early in life, soon after their puberty ceremony at age 14 or 15. Childbirth was similar to the first menstruation, as women were secluded in special huts and were placed on hot beds of heated sand and rocks. They were also fed restricted food and drink. At the puberty ceremony, however, relatives came with gifts of food and sang for the young girls (Devereux 1939:100).

No comparable ceremony was performed for young men, although Scrivner (1970:72) believes they may have participated in a jimsonweed rite which induced the all-important dreaming. Young men also participated in name-making, by which they were ascribed a name based on the performance of some feat in hunting or warfare.

Marriage was without ceremony and seems to have been primarily on a trial basis. The couple lived matrilocally for a time, although later they may have established a separate household. Polygamy was practiced, and divorce was common. The Mojave cremated their dead and one year after the deceased's burning a commemorative ceremony was held. The house, shade and property of the deceased were also burned.

### History

Although the expedition of Hernando de Alarcon in 1540 may have been the first contact with the Mojave, the records make no specific reference to them (Schroeder 1954). The first definite meeting with the Mojave was by Don Juan de Onate in 1604 who traded with them in the Mohave Valley for foodstuffs

(Bolton 1916:212-280). In 1776, Francisco Garces traveled north from the Gila-Colorado confluence guided by a Mojave. He found them at war with the Halchidhoma in the Colorado Valley but was guided peacefully west across the Mojave Desert to the Pacific Coast over a Mojave trade route (Coues 1900:414).

The next documented contact with the Mojave was not until 1826 when the fur trapper Jedediah Smith traveled southward into the Mojave Valley. Although his first contact was friendly, he and other fur trappers had several hostile encounters in the ensuing decades. When Captain Lorenzo Sitgreaves planned the route for a transcontinental railroad in the 1850s, he too was attacked by the Mojave (Sitgreaves 1853:20). By 1859, a detachment of cavalry was sent to the Mojave Valley led by Colonel William H. Hoffman, who eventually established what is now Fort Mojave for the protection of wagon trains (Bean and Vane 1978:5-26 to 5-27).

In 1862, when gold was discovered in the Colorado Valley, goldminers began to enter the territory of the Mojave in increasing numbers. In 1865, the Colorado River Reservation was established and some of the Mojave moved south to live there with Yavapai, Walapai and Chemehuevi. Conditions were not good on the reservation--farming was poor and disease was rampant--and the Mojave were forced to subsist on rations. By 1870, only 500 Mojaves were left on the reservation. Three thousand others remained in the Mojave Valley, which was made a reservation in 1910 (Bean and Vane 1978:5-29).

From the 1870s to the 1890s the Mojaves suffered from disease and loss of their farmlands. In recent years Mojave country has become increasingly popular with fishermen and water sportsmen, generating tourism income for the tribe. Although the Mojave themselves have not adopted large scale agriculture, the Colorado River tribes are profiting from leases of reservation lands to large commercial farming operations.

By 1890, an Indian boarding school was established within the confines of Fort Mojave. This action was an attempt to assimilate the Mojave through education of their children. By the 1900s the Bureau of Indian Affairs agents were encouraging the Mojave to enroll with and live on the Colorado River Indian Reservation (CRIR). Consequently, there are Mojave on CRIR as well as at the Fort Mojave Indian Reservation.

### Serrano/Vanyume

The Serrano proper and the Vanyume, one of four groups commonly assigned to the Serrano language group, occupied and ranged the western part of the study area. The Vanyume were a small little-known group who lived along the Mojave River and included within their aboriginal heartland the area from present day Victorville through Barstow to Baker. There are no known contemporary descendants of this tribe. The Serrano proper extended north to at least Victorville from their core territory centered on the San Bernardino Mountains. Serrano boundaries are difficult to ascertain due to significant ethnographic and linguistic data gaps and a form of sociopolitical organization based on autonomous localized lineages in the absence of a tribal body and common territory.

## Sources

Serrano sources are not abundant. Strong (1929), Kroeber (1976) and Benedict (1924) remain the basic references for ethnographic information. Druckers' (1937) culture element list provides additional material. Specialized treatments include Benedict (1926) on mythology, Bright (1975) and Kroeber (1907, 1909) on linguistics and Gifford (1918) on sociopolitical organization. Bean and Smith (1978) provide a review article and Bean and Vane have compiled the basic sources in several reports (1978, 1979, 1982a, 1982b). Any serious scholar of Serrano culture and society would require the unpublished field notes of Bean (1962-1972) and Harrington (n.d.). Ethnohistoric reference to these people can be found in Beattie and Beattie (1951), Brooks (1977), Casebier (1975) and Kroeber (1972).

## Territory and Language

The Serrano and the Vanyume were Takic speakers whose language belongs to the greater Uto-Aztecan language family. Very little is known about the Vanyume because they ceased to exist as a group before 1900, having fallen prey to relocation efforts and conflict with Euro-americans (Bean and Smith 1978:570; Bean and Vane 1982b:56). They were apparently, however, a small and materially impoverished people who hunted the available animals of the desert and collected edible desert flora (Beals and Hester 1971:81; Hopa 1980:81). While definitive territorial boundaries are difficult to assess, it is known that the Vanyume lived primarily along the Mojave River in the central and eastern portion of the Mojave Desert (Bean and Smith 1978:570). Serrano territory included the San Bernardino Mountains east of Cajon Pass, with boundaries extending north toward Victorville, east past Twentynine Palms, and then south to include the Yucaipa Valley. Strong (1929:11-13) identified the coyote clan Maviatem as being located in the area of Victorville and noted that ("one or two") descendants of this group were still in the vicinity in the 1920s.

## Subsistence and Technology

Serrano economy was based upon a foraging existence, with labor divided between the sexes: the men hunted and fished and the women gathered plants for food as well as for medicinal concoctions. These people took advantage of all the available resources within their territory. Occupation areas ranged from the desert floor to the high mountain elevations. As with most Native Americans, the close proximity of water when selecting a village site was of primary concern (Bean and Smith 1978:571; Bean and Vane 1979:5-39; Benedict 1924:368).

Large animals were taken with the bow and arrow and smaller game were often downed with curved throwing sticks, traps and snares. Communal rabbit hunts were sometimes carried out, usually in conjunction with the mourning ceremony. When lineages collectively hunted or gathered plant resources only one of the lineage leaders took responsibility for the entire group endeavor (Benedict 1924:391-392; Drucker 1937).

All of the plant and animal products were used, inclusive of the blood. In addition, the marrow was extracted from the bones and any meat that was not eaten within a short period of time was made into a jerky and stored until fresh game were scarce. This same process applied to some of the vegetables as well (Bean and Smith 1978:571).

The Serrano used a variety of raw materials for the manufacture of diverse implements that assisted them in their daily routine. For example, awls were made of wood and bone, elaborately designed baskets were woven from various plant fibers, some stones were worked for the design of pipes, and cordage was usually manufactured from Yucca fibers (Bean and Smith 1978:571; Drucker 1937).

Serrano houses were constructed for single-family dwelling. They were circular, dome-shaped structures with willow and tule frames and thatching. Although fire hearths were located in the center of the house, they were used for maintaining warmth in the house and not to cook over. The majority of cooking was done outdoors (Bean and Smith 1978:571; Hopa 1980:100). Additional structures found within a Serrano encampment or village included the ramada, an open-sided but roofed building, the sweat lodges, which were used by men, women and children, and the storage granaries (Bean and Smith 1978:571; Hopa 1980:99).

**Social Organization**

The Serrano were organized into patrilineal exogamous clans and each clan was associated with one of two moieties, either the Wildcat or the Coyote (Strong 1929:17). The head of each clan was the chief, a ceremonial leader as well as a political officer. This individual was responsible for decisions on hunting and gathering locations and time-frames as well as identifying appropriate times for and overseeing the various ceremonies during the year. Chieftainship was hereditary, passing from father to the most capable son, though occasionally a wife of the previous chief could assume the role (Strong 1929:17). The position of assistant to the chief was of ceremonial import and was also an hereditary status, passing from father to son. This individual acted as a sort of "town-crier" and carried out specific duties at the various ceremonies. Even though the clans were patrilineally based, women maintained affiliations with their consanguineal clan, both ritually and by using the clan name (Hopa 1980:100).

Reciprocity with respect to sharing resource areas with other groups such as the Cahuilla was common. This feature, combined with trade practices with neighboring groups, was important in maintaining Serrano sociopolitical and economic stability.

## Religion and Ritual

Shamans played an important role among the Serrano. They were second in rank only to the chief. As a rule, shamans were considered predisposed to their acquisition of knowledge and power and therefore, needed only to ingest the hallucinogenic drug, Datura meteloides (jimsonweed), to have these special powers of healing manifest themselves (Bean and Smith 1978:573; Benedict 1924; Strong 1929:35). It was the shaman's responsibility to preside at religious and social functions (Hopa 1980:101), as well as to cure patients through a combination of using their powers and administering medicines.

## Life Cycle

At the birth of a child both the mother and the newborn were placed in a warm pit for several days (Strong 1929:30). In addition, taboos on particular foods were observed. When the children reached puberty, they had ceremonies associated with their coming of age. The girls' ceremony again involved "roasting," and dietary taboos, in addition to instructions on proper behavior as a future spouse. Daughters of affluent families held their ceremonies in public, while girls of less prominent families held their ceremonies in the presence of the nuclear family only (Strong 1929:31). Boys' initiation ceremonies were more strenuous than the girls' as they involved dancing and included the ingestion of the hallucinogenic jimsonweed. Visions perceived during the induced trance state were held to have considerable importance for the boy's future life (Bean and Smith 1978:572; Strong 1929:31).

In the prehistoric period the Serrano cremated their dead. At the time of cremation the majority of the deceased's possessions were burned; however, one month after this ceremony another observance for the dead person was held where additional possessions were burned. One year after an individual's death, another ceremony, the Mourning Ceremony, was held. This event lasted seven days, with two of these days being taken up with the preparation of food and gifts for the ceremony. The remaining days were concerned with the observances surrounding the mourning ceremony as well as additional ritual behavior such as child-naming (Bean and Smith 1978:573; Hopa 1980:101).

## History

In 1806, fewer than thirty years prior to the secularization of California's missions, the Serrano and Vanyume were being recruited into the mission system. Spanish influence was negligible, however, until 1819 when an assistencia was built near Redlands (Bean and Vane 1978:573). As late as 1819 there were still gentile villages, for example Atongaibit (Casebier 1975:20). Jedediah Smith (in 1827) was the last person to record Vanyume villages, although A.L. Kroeber did interview an elderly Vanyume woman living among the Mojave in the early part of this century (Kroeber 1972:33). By 1877 the Morongo Indian Reservation in Banning, California was established. Sixteen years later the San Manuel Indian Reservation was established in Highland, California. Although the Morongo Reservation is within traditional Cahuilla territory, there are people of Serrano descent residing there as well as on San Manuel.

## Kawaiisu

Kawaiisu aboriginal territory was located north of the western part of the study area in the Tehachapi Mountains and Pass between the San Joaquin Valley and the Mojave Desert. Known for their knowledge of regions and resources far beyond their mountain homeland, they ranged the Mojave Desert on subsistence gathering forays. The Kawaiisu aboriginal population has been estimated at approximately 500 by Kroeber (1976:603), and Zigmond (cited below) could find only 45 Kawaiisu speakers during his fieldwork in the 1930s. Today, Kawaiisu descendants reside in Tehachapi, San Bernardino and Ridgecrest.

### Sources

The paucity of information on the Kawaiisu is evidenced in the few references accorded this group in the California volume of the Handbook of North American Indians. In the earlier Handbook, Kroeber (1976) also provides minimal coverage. Hopa (1979) has compiled most of the available ethnographic data based in large part on Zigmond (1938, 1941, n.d.). There are references to the Kawaiisu in Hodge (1910), Hopkins (1965), Lamb (1958) and Powers (1877). Bean and Vane (1978, 1979, 1982a, 1982b) provide a brief overview.

### Language and Territory

The Kawaiisu spoke a dialect of the Numic language division that belongs to the larger Uto-Aztecan family. Their main occupation area was the watershed of the Sierra Nevada-Tehachapis. They were bounded on the west by the San Joaquin Valley and on the east by the Mojave Desert. Tribes bordering the Kawaiisu were the Tubatulabal on the north, the southern Yokuts on the west, the "Tejon" on the south, and the Southern Paiutes on the east (Bean and Vane 1982a:56; Hopa 1980:107). Their mountainous territory, ranging in elevation from approximately 1,000 to 8,500 feet, was crosscut by several passes including Tehachapi, Oak Creek and Walker (Hopa 1980:107). These passes were used by the Kawaiisu on seasonal foraging trips which led them out of their primary territory and into that of neighboring tribes. A mutual sharing of resource areas created, for the most part, a peaceful coexistence between the Kawaiisu and their neighbors, including the Mojave and Chemehuevi, who were enemies of the Serrano (Bean and Smith 1978:570). The Kawaiisu were not, however, particularly friendly with the Yokuts to the west (Hopa 1980:108).

## Subsistence and Technology

These people were hunters and gatherers who occasionally pruned wild plants and burned dry brush (Hopa 1980:109). Permanent village sites were located in the mountains, but their foraging economy took them seasonally into both the desert and valley areas. Their mountain homeland provided seven species of oak while desert plants such as mesquite and screwbean were gathered from as far away as Newberry Springs (Hopa 1980:107) east of Daggett near the study area.

Food gathering was aided by the use of baskets, while handstones and millingstones as well as baskets were employed in food preparation. The variety of basketry ranged from seed beaters to burden baskets. Diverse roots, nuts, berries, seeds, and acorns were collected for food processing. In addition, the Kawaiisu's collectable flora provided medicinal cures as well as having supernatural attachments (Zigmond 1941, cited in Hopa 1980:109).

Hunters made use of a variety of weapons, from the bow and arrow to decoys and blinds. Bows were usually sinew-backed and manufactured from juniper wood. The kind of arrow used depended upon the size of the animal hunted: large animals were brought down with a three piece arrow and more diminutive game with one or two piece arrows (Hopa 1980:108). As with the majority of Native Californians, deer was the favored game. However, a great number of faunal species were sought aside from the ungulates. The Kawaiisu diet also included rodents, insects, reptiles, and occasionally fish (Hopa 1980:109).

Because the Kawaiisu and their neighbors practiced resource reciprocity it was not unusual for the Kawaiisu to join the Tubatulabal and the Southern Yokuts in the San Joaquin Valley for communal antelope drives (Smith 1978:444). Just as plant resources were employed for a variety of purposes, so were animal byproducts. For example, animal skins were soaked in a mixture of deer brains and pine nuts. Later, the hide was used in the manufacturing of such items as cradle boards (Hopa 1980:109).

The Kawaiisu made two kinds of house structures: one that was waterproof for the winter and another that was open, with only a roof for shading, for the summer. Sweat houses and storage granaries were also constructed (Hopa 1980:108).

## Social Organization

There is little existing data regarding Kawaiisu social organization. It is assumed that they had chiefs, or some leader for the villages. It is believed that their villages were permanently occupied except for short periods of time when foraging took them to neighboring areas. Residence patterns were optional; they could choose whether they preferred matrilocal or patrilocal living. Their practice of intermarriage with other groups allowed for a great diversity in cultural attitudes and expressions (Bean and Vane 1979:5-34; 1982b:55-56).

## Religion and Ritual

Dreams, visions and supernatural beings were central to Kawaiisu religion (Bean and Vane 1982b:56). Hallucinogens were used in initiation and other ceremonies. As with many of the southern California groups, an eagle ceremony was an integral feature of religious practices. Eagle nests were owned through inheritance. With the Kawaiisu, however, eagles were not in one's possession through descent, nor were the birds killed for ceremonial purposes. Instead, their feathers were taken and the bird was subsequently released.

Kawaiisu legends mostly focused on animals, although humans are sometimes the central figure in their myths. As elsewhere in California, however, the coyote is commonly the most important figure. Myths concern the origin of fire, sexual intercourse and hunting (Hopa 1980:110). Dreams not only imparted power, they fortold good and evil events. All individuals, and animals, had a soul that was known as inipi. Inipi had individual characteristics for each being, which made it readily recognizable. This soul could take animate and inanimate form, perform malevolent deeds and was indestructable (Hopa 1980:110).

## Life Cycle

The major turning points in an individual's life were attended with taboos and ceremonies specific to the occasion. A common taboo against young girls eating meat and salt during their puberty ceremonies also carried over to when a woman was pregnant (Hopa 1980:111).

Approximately two years after puberty rites, the girls and boys alike took part in a ceremony involving the intoxicating plant jimsonweed (Datura meteloides). It has been suggested that the Kawaiisu's western and southern neighbors introduced this hallucinogenic drug (Bean and Vane 1982b:56) which encouraged visions. Young people were sometimes also made to undergo the ant-ordeal which involved swallowing live ants wrapped in balls of eagle down (Hopa 1980:111). Both the jimsonweed and ant-ordeal ceremonies were considered to be preventive therapy.

Death, as the Kawaiisu perceived it, was the result of one of two kinds of occurrences: sorcery or natural causes. When a village member died the individual was buried immediately and the deceased's house was razed by fire. The spirit might linger in familiar places but would eventually journey to the spirit world "following a trail eastward across the desert" (Hopa 1980:111).

Commemoratory mourning ceremonies were held at irregular intervals following initial interment.

### History

When the Franciscan missionary Garces entered the Mojave Desert in 1776 he visited a village that is believed to have been Kawaiisu. An engineer studying the feasibility of railroad routes probably also saw the Kawaiisu along Canebrake and Kelso creeks in 1853 (Hopa 1980:112). As a result of Euroamerican incursion on Kawaiisu territory, however, they rapidly lost their land, intermarried with non-Indians and, therefore, no longer existed as an identifiable tribal group by 1870 (Bean and Vane 1979:5-34; Hopa 1980:112). Between 1936 and 1940, however, Zigmond (1938, 1941, Ms.:n.d., cited in Hopa 1980:112) located approximately 35 Kawaiisu speaking people who imparted a vast amount of knowledge on the botany of their traditional region. Today, families who are cognizant of their Kawaiisu ancestry reside in Los Angeles County, San Bernardino and Tehachapi (Bean and Vane 1979:5-35).

## STUDY PERSONNEL

Clyde Woods served as principal investigator for the ethnology study. Paige Talley and Lisa Capper served as research associates. Talley developed an inventory of previously identified Native American cultural resources in the study area from the work of Bean and Vane (1979, 1982a, 1982b) and Stoffle et al. (1983). She also prepared the Serrano and Kawaiisu overviews. Woods conducted the contact program, met with tribal councils and representatives (accompanied by Talley), prepared the other sections of the report and had overall responsibility for the conduct of the research. Lisa Capper conducted the literature review and provided editorial assistance.

Woods holds a Ph.D. in Anthropology from Stanford University. Talley has an M.A. in Anthropology from San Diego State University and Capper a B.A. from Prescott College. All have extensive research experience with California Indians. Woods has also worked with Native Americans in Arizona, Nevada, Oregon and Montana.

## INVENTORY METHODS

The inventory compiled for the present study was generated primarily from an extensive existing data base developed for previous transmission line projects in the study area. These include Bean and Vane (1978, 1979, 1982a, 1982b), Stoffle (1983), Woods (1983) and Woods in Dames & Moore (1984). A review of the major published ethnographic, ethnohistoric and historic literature relevant to cultural resources in the study area was also undertaken. The methods used to develop an inventory for each of these previous studies are briefly described below. Procedures followed in this study are also outlined.

## Previous Studies

**Bean and Vane (1978).** Persistence and Power: A study of Native American Peoples in the Sonoran Desert and the Devers-Palo Verde High Voltage Transmission Line.

The study area for this project was situated south of that being considered for the present study. The Mojave and Chemehuevi tribes were included in this study, however, and some of the archival and ethnographic information are relevant to the subsequent studies conducted. This work also provided the initial theoretical, methodological and topical bases for the succeeding Bean and Vane investigations conducted in the present Mead/McCullough-Victorville/Adelanto study area.

**Bean and Vane (1979).** Allen-Warner Valley Energy System, Western Transmission System: Ethnographic and Historical Resources.

The inventory developed for this project represents the basic data base used for the subsequent Bean and Vane studies described here and that used for the present study. It was generated from archival research, interviews and attitude questionnaires conducted by the same researchers employed for the Devers-Palo Verde research and following the same basic format. The primary researchers included Richard Stoffle and Michael Evans for the Las Vegas Paiute, Pahrump Paiute and Chemehuevi at Chemehuevi Valley; Jack Young for the Chemehuevi and Mojave at the Colorado River Indian Reservation and Fort Mojave; Para Hopa for the Serrano at San Manuel and a Kawaiisu residing in the Tehachapi area; and Diane Rothenberg for urban Indians in the Barstow area. Eighteen Paiute associated with the Pahrump and Las Vegas groups were interviewed as were 40 Mojave and Chemehuevi affiliated with CRIT and Fort Mojave. The Tribal Council at Chemehuevi Valley suggested that the researchers rely on information previously gathered during the Devers-Palo Verde study. Nine Serrano and one Kawaiisu were interviewed and a sample of 47 Native Americans comprised the urban Barstow sample. None of the latter had traditional ties to the study area and their responses were not included in subsequent Bean and Vane studies or the present investigation.

Bean and Vane also published the results of a study on the impact of transmission line projects on reservation recreation areas based on the request for such a study by the Chemehuevi Valley Tribal Council. This component of the Allen-Warner Valley ethnographic report, extrapolated from the results of research at Aw-Villa on the Colorado River and the Kaibab Paiute Reservation in Arizona is not relevant to the present study and was not used by Bean and Vane in their subsequent reports.

**Bean and Vane (1982a).** The Ivanpah Generating Station Project: Ethnographic (Native American) Resources.

Field ethnographic research conducted for the Allen-Warner Valley Project was considered by Bean and Vane to be a valid statement of Native American attitudes toward the construction of high voltage transmission lines through the Mojave Desert. The thrust of the Ivanpah research was therefore:

> to gather data on Native American attitudes toward the IGSP generating station, coal slurry lines, water lines, and railroads; on the small part of the study area not in the AWVES study area; on the parts of the HVTL route that are different from any proposed in the AWVES proposal; and toward the project as a whole (Bean and Vane 1982a:5-2).

To this end, meetings were held with tribal councils or representatives at the Las Vegas and Pahrump colonies, the Chemehuevi Reservation, Fort Mojave and CRIT. Sixteen Chemehuevi and a few elders from the other groups were interviewed at this time. Additional interviews with the Serrano and Kawaiisu were determined not to be necessary nor were those with the urban sample in Barstow since the latter had indicated earlier that "they had no special right to speak for the Mojave Desert, inasmuch as it is not their traditional territory" (Bean and Vane 1982a:2-8).

**Bean and Vane (1982b).** Intermountain Power Project (IPP), Intermountain-Adelanto Bipole I Transmission Line, California: Ethnographic (Native American) Resources.

This report draws freely upon information presented in earlier studies, particularly that provided in the Allen-Warner Valley report. As Bean and Vane (1982b:19) point out,

> The transmission lines for the IGSP run parallel to the IPP transmission line right-of-way west of where the latter crosses Interstate Highway 15, except for the extreme western end of the corridor, where the IPP right-of-way proceeds to the Adelanto Plant Site, and the IGSP corridor, to the Lugo Substation near Hesperia.

The study area for this IPP study was one of the corridors studied in the AWVES study. All of the tribal groups were again contacted for the IPP study, however. Additional interviews were then conducted with some selected representatives of the Las Vegas and Pahrump Paiute, Chemehuevi and Mojave with traditional concerns in the study area. Additional Serrano interviews were not considered necessary by the chairperson at San Manuel and no Kawaiisu were reinterviewed.

**Stoffle et al. (1983).** NUNGWU-UAKPI: Southern Paiute Indians Comment on the Intermountain-Adelanto Bipole I Transmission Line.

Stoffle and associates contacted tribal representatives of the Las Vegas and Pahrump Paiutes for the southern portion of the IPP Project in Nevada. They conducted field research with several members of each group and sent survey questionnaires to 37 persons. Eight of these were returned. General and specific concerns for Native American and archaeological sites were expressed by this sample of eight respondents along with mitigation recommendations. Ethnographic resources were identified within the Nevada portions of the study area relevant to the Mead/McCullough-Victorville/Adelanto Transmission Line Study. Similar information is provided by Stoffle et al. (1982) in an earlier report prepared for the same project.

**Woods (1983).** Mead/Phoenix 500kV DC Transmission Line Project, Native American Cultural Resources: Generalized Environmental Analysis and Alternative Corridors Studies.

Archival research, ethnographic research and an extensive contact program were used to develop an inventory of Native American cultural resources for this study which included the eastern portion of the present Mead/McCullough-Victorville/Adelanto study area. The Las Vegas Paiute, Chemehuevi and Mojave were among those contacted and interviewed for this project. Several areas relevant to the present study were identified and related concerns expressed.

**Woods in Dames & Moore (1984).** Barstow to Victorville-Adelanto Subregional Transmission Line Siting Study.

The cultural resources component of this report includes ethnographic sites and sensitivity information relevant to the western portion of the Mead/McCullough-Victorville/Adelanto study area. The inventory of general and specific sites was developed from a review of existing environmental reports and archival sources.

## Present Study

The primary focus of the present study was to apply the existing inventory compiled from previous studies to the Mead/McCullough-Victorville/Adelanto study area, review archival and other sources which might contain additional or more recent information relevant to the study area and solicit input from appropriate Native American groups. Details of the contact program, archival sources consulted, and fieldwork are described under data collection procedures below. Some effort was also devoted to a review of the content and procedures of the California Desert Conservation Area (CDCA) Plan as it relates to the study area. To this end, meetings were held with appropriate Bureau of Land Management (BLM) personnel and archival sources consulted in the Sacramento State Office and the Riverside District Office.

## Data Collection

### Contact Program

The contact program included mail, telephone and personal contacts with Native Americans, agency personnel and other professionals familiar with the ethnographic resource base in the study area. A summary of these contacts is provided at the end of this chapter. Letters and maps describing the project were sent to appropriate Native American and agency personnel on November 8, 1984. These were followed by telephone calls over the next two weeks. Professionals were also contacted by phone during this period. Meetings with tribal councils and field reconnaissance of the study area were conducted during the last week in November. The format for each of the tribal meetings included a review of the procedures being used to conduct the ethnographic research including the use of a data base and related concerns identified during previous studies.

A meeting was held with Richard Alvarez, the Tribal Chairperson of the Chemehuevi Valley Reservation on November 26. Alvarez reviewed the project area map, noting that the Chemehuevi had roamed over much of the study area and that cultural remains, including burials, might be found there. He recommended that burial sites be avoided and provided several referrals to individuals who might be knowledgeable regarding the study area. One of these referrals, interviewed in Parker, Arizona, noted that the Chemehuevi travelled as far west as Victorville and Twentynine Palms and he expressed particular concerns for the Ivanpah Valley. Another was contacted by mail. Alvarez requested that the recommendations from a subsequent meeting scheduled with the Colorado River Indian Tribes be reviewed with him. This was done the following day and he agreed with their position on the project.

A meeting with the Resource Development Committee of the Colorado River Indian Tribes was also held on November 26. Present were Harry Laffoon, the Chairman of the committee and Vice Chairman of the tribal council, Charles Lamb, Director of the museum, Weldon Johnson, Assistant Director of the museum and Curtiss Martin, also associated with the museum. The committee emphasized the importance of protecting cultural resources in the study area and strongly recommended that corridors identified in the CDCA Plan be used by the project. The use of appropriate Native American consultants during archaeological work was encouraged. Charles Lamb suggested that an on-the-ground study of the trail system in the Mojave Desert in association with the archaeological studies would be worthwhile. This should include the entire trail system, not just the portions which cross the study area. He also noted that interviews and field reconnaissance with elders to identify locations associated with placenames in songs would be beneficial to the present and subsequent studies. The tribe lacks funds to support the latter research. Lamb also recommended that the Colorado River Indian Tribes Museum be the depository for all artifacts collected during archaeological work on the project. They would retain the Mojave artifacts and store the Chemehuevi materials until the Chemehuevi Valley Reservation develops appropriate facilities of their own. The museum would expect a curatorial fee for these services.

A meeting was held with Claude Lewis, the Vice Chairman and Tribal Historian at the Fort Mojave Reservation on November 27. He supported the Colorado River Indian Tribes' position encouraging use of existing transmission corridors identified in the CDCA Plan and the use of Native American consultants during archaeological work for the project. Lewis stated that the

Mojave were very concerned for their traditional range in the Mojave Desert but that the remaining elders could no longer pinpoint specific resource areas. He voiced no objection to the curation of Mojave materials at the Colorado River Indian Tribes Museum, noting that plans for a museum at Fort Mojave had never materialized.

Meetings were held with the Las Vegas Paiute and a representative of the Pahrump Paiute on November 28. Chairman Billy Frye and the Las Vegas Paiute Tribal Council expressed no specific concerns regarding the project but did refer one of the meeting attendees as an experienced consultant for archaeological work. This was subsequently discussed with that individual. At the Las Vegas Indian Center, Richard Arnold, a resident at Pahrump, expressed general and a few specific concerns for cultural resources in the study area. He referred Ilee Castillo as knowledgeable of the study area. Castillo was interviewed in the context of several of the previous transmission line studies in the project area. Arnold had also provided input for previous studies, expressing general concerns for the area between Shoshone and Baker and specific concerns for gypsum cave and another cave in the Black Mountains.

### Fieldwork

Field reconnaissance of the study area through the El Dorado Valley and along the McCullough Range was undertaken on November 27. The area from Ivanpah Valley south and west along Interstate 15 to Barstow was covered on November 28. On the following day the alternative routes between Barstow, Karmer Junction and Victorville were reviewed. Native Americans were not involved in the project area reconnaissance for this phase of the environmental investigations.

### Secondary Data Sources

Ethnographic and ethnohistoric sources for each of the tribes which traditionally occupied the study area are provided in the bibliographic essays which accompany the overviews. The major sources used to compile the inventory are listed below.

Bean and Vane 1978
Bean and Vane 1979
Bean and Vane 1982a
Bean and Vane 1982b
Beattie and Beattie 1951
Brooks, Wilson and Brooks 1981
Bureau of Land Management 1980 (draft)
Bureau of Land Management 1980 (final)
Casebier 1975
Foreman 1941
King and Casebier 1981
Knack 1980

Kroeber 1976
Stoffle et al. 1983
Strong 1929
Van Valkenburgh 1976
Woods 1983
Woods in Dames & Moore 1984

## Data Compilation

The study area for the ethnology investigation was defined as one mile on either side of the alternative links. Sites beyond this distance of a sacred or ceremonial nature which might be subject to visual impact by project facilities were also considered for inclusion. Inventoried sites were mapped on U.S. Geological Survey 7.5 or 15 minute topographic quadrangles and then transferred to a ½ inch = 1 mile project base map.

## INVENTORY RESULTS

As described in the methods section of this report, the inventory was derived primarily from ethnology studies previously conducted in the study area. Most of the inventoried sites are coterminous with or associated with archaeological resources. The reason for this is that Native Americans traditionally associated with the Mojave Desert have been long removed from the study area. As such, there are few elders living who can remember the names, places and activities associated with the more traditional style of life practiced by their forebears in the Mojave Desert. A common statement given to all of those who have worked with Native Americans of the study area is that "most of the old people are gone now." Most of the leaders, elders and others contacted, however, expressed either general or specific concerns for the historical and archaeological resources which score the presence of their people in the desert and constitute an important part of their heritage. Bean and Vane, therefore, have applied ethnographic values to many of these resources and resource areas. These values have been retained for purposes of the present study.

Additionally, as one might expect, the places identified in the literature and by the few remaining knowledgeable elders are commonly associated with archaeological remains of past human activity. These include habitation, resource procurement and tool production sites with a few possible burials and shrines. Lacking for the study area is a specific body of knowledge regarding the location of sacred and ceremonial places. Absent, therefore, are all but a few initiation and curing sites, power places, locales of mythological events and other ritual locations which might be expected in the surrounding buttes, hills and mountains. This information is probably lost to present generations.

The inventory data on Table 11-1 are organized according to link. It should be emphasized that many of the site locations are quite general. A good number are based on the location of the archaeological sites with which they are associated. Others cover a wide area, such as a valley, dry lake or mountain range. Still others could not be mapped due to a lack of reliable locational data. The site numbers in the description column were assigned for the present study and are not official designations. General areal locations are then provided along with a brief summary of the nature of the site. The source of information used by Bean and Vane is provided as NA = Native American, A = archival, L = literature search and PC = personal communication. BLM/CDCA refers to the BLM CDCA Plan as a source. Other sources are referenced in the standard format of author and date. More detailed site descriptions and locations are provided in a confidential appendix and map which will be made available to appropriate personnel for purposes of planning and preservation.

## SENSITIVITY

### Methods

The sensitivity of each inventoried ethnographic resource to the introduction of a transmission line was assessed. Heritage significance, the relative degree of Native American concern and values expressed for the resource or resource type, was the major consideration in determining sensitivity levels. This judgement is loosely based on a rating scheme employed by Bean and Vane in a number of previous investigations conducted in or near the study area (1978, 1979, 1982a, 1982b). The resource base addressed by Bean and Vane is basically the same as that identified for the present study. The scheme used by Bean and Vane assigns a range of numerical values from one to ten to each resource based upon degree of sacredness, size and complexity. A nine, for example, the highest rating assigned in the study area, might include large occupation centers, multiple burials or cremations or highly significant sacred sites; a six might include smaller occupation sites or large workshops in the absence of a sacred component; a three might include small temporary occupation sites, extensive sherd and lithic scatters or rock circles (Bean and Vane 1979:7-13,14). Ratings from one to three are said to be of low sensitivity, four to six are of moderate sensitivity and seven to nine are of high sensitivity. Individual resources within this scheme, however, are assigned a range of values which often overlap at least two of these categories. Large resource areas, for example, are commonly given a range of four to eight (4-8). For purposes of the present analysis, these ranges are accordingly assigned four levels of sensitivity: Moderate to Low, Moderate, Moderate to High, and High. In the example cited above, a range of 4-8 would be assigned a Moderate to High (M-H). To equate these with the sensitivity levels used for the overall project, moderate to low = minimal sensitivity; moderate = moderate sensitivity; moderate to high = major sensitivity; and high = maximum sensitivity.

## Results

The Sensitivity Table (Table 11-2) is organized according to a format similar to that used in the Inventory Table; by link, site number and site name. Site identification is described as Native American, Records Search (archaeological site forms), Literature Search and BLM/CDCA. Sensitivity levels, as defined above, are provided in the last column.

## IMPACT ASSESSMENT

### Introduction

Ethnographic cultural resources were inventoried within a study area defined as three miles on either side of each alternative link. This was done to accommodate possible link changes, to provide latitude to account for often imprecise locational information, and to consider potential visual sensitivity. Impact assessment, however, was confined to a study area defined as one half mile on either side of the alternative links. While this is a relatively wide area of impact for the project, it was used to allow for possible locational discrepancies.

Some of the inventoried resources compiled from previous ethnographic studies consist of prehistoric (archaeological) resources in the absence of Native American identification or comment. Impacts to these resources have been left to the archaeological resources study team since the assignment of both ethnographic and archaeological impacts to such sites would result in double weighting. Ethnographic impacts are assessed only to those places where Native American concerns are clearly evident and to those identified as ethnographic and ethnohistoric in the literature. This does, of course, include a number of archaeological resources associated with areas for which Native Americans expressed concerns. As an example of this situation, Native Americans have expressed concerns for the Mountain Pass area and the associated archaeological sites located there. Ethnographic values, and therefore potential impacts, are assigned to the area rather than to particular archaeological resources. Where an area containing archaeological sites of general concern to Native Americans has been identified, but where Native Americans have not expressed particular concerns, impact assessment is left to archaeology.

### Methods

Ethnographic resources are subject to both direct and indirect impacts. Direct impacts are commonly associated with project construction and indirect impacts with project operation although there is some obvious overlap. Direct impacts usually involve ground disturbance while indirect impacts involve increased public access to previously closed areas. These impacts can affect the physical integrity of ethnographic sites. Impacts which can affect the visual and aural integrity of ethnographic sites, usually associated with sacred sites, are also possible during both construction and operation. None were identified for the present project, however.

Impacts to ethnographic resources were assessed through the application of an impact model. Principal components of the impact model are sensitivity level and degree of required access. Sensitivity levels, as defined for the project as a whole, include maximum (unacceptable magnitude of environmental disturbance), major (high but not unacceptable magnitude of environmental disturbance), moderate (moderate magnitude of environmental disturbance) and minimal (minimal magnitude of environmental disturbance). Sensitivity levels developed for the ethnographic resources in the study area (high, moderate to high, moderate, moderate to low) are equated with these project defined sensitivities in the impact model. Degree of access requirements are shown as New, Upgrade and Sufficient. Impact levels are assessed as High, Moderate, Low, and Negligible on the basis of the interaction of these variables. As shown, potential impacts decrease as the degree of ground disturbance, defined by access requirements, decreases.

| | Access Requirement | | |
|---|---|---|---|
| Sensitivity Level | New | Upgrade | Sufficient |
| Maximum (H) | High | High | Moderate |
| Major (M-H) | Moderate | Moderate | Low |
| Moderate (M) | Moderate | Low | Negligible |
| Minimal (M-L) | Low | Negligible | Negligible |

## Results

As shown in Table II-3, impacts to resources identified as ethnographic for the study area are relatively low. This reflects, in large part, the absence of highly significant sacred sites along the alternative corridors. Other factors include the high incidence of archaeological and ethnographic site correspondence, where impacts have been assigned by archaeology rather than ethnology, and the degree of previous disturbance along the existing transmission corridors.

## Mitigation

Pre-construction cultural resource studies are included in the Los Angeles Department of Water and Power's generically committed mitigation. The survey of potentially sensitive ethnographic resources and resource areas situated along the preferred corridor should be conducted with the aid of knowledgeable Native American participants. This survey should be conducted in conjunction with the intensive archaeological survey. The purpose will be to accurately record the location and integrity of previously recorded resources, identify any new sites encountered, and document related Native American concerns. The inventory developed through these procedures should then be discussed with appropriate Native American religious and political leaders. Where avoidance is not possible and physical disturbance to significant Native American cultural resources cannot be eliminated by the citing of access roads, towers, construction areas and other facilities, mitigation recommendations should also be discussed with appropriate Native leaders. Such consultation is in accordance with the provisions of the American Indian Religious Freedom Act and other resource protection legislation.

# AGENCY CONTACTS

## RESOURCE: ETHNOLOGY

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Native American Heritage Commission<br>State of California | | | |
| Loretta Allen, Executive Secretary | 11/08/84 | Letter | cc: Native American contact letter. |
| John Smith, Administrative Assistant | 11/20/84 | Telephone | Referrals to Dean Mike (Luiseño) and Henry Duro (Serrano). |
| Chemehuevi Tribal Council | | | |
| Richard Alvarez, Chairman | 11/08/84 | Letter | Description of project and request for input. |
| | 11/20/84 | Telephone | Discussed project and set meeting date. |
| | 11/26/84 | Meeting | Reviewed and commented on project. |
| | 11/27/84 | Telephone | Discussed comments. |
| Donald Smith, Member | 11/26/84 | Meeting | Reviewed and commented on project. |
| Tito Smith, Member | 12/03/84 | Letter | Description of project and request for input. |
| Colorado River Indian Tribes | | | |
| Anthony Drennan, Sr., Chairman | 11/08/84 | Letter | Project description and request for input. |
| | 11/19/84 | Telephone | Request for meeting and referrals. Referred Harry Laffoon. |

Agency Contacts (continued)

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Colorado River Indian Tribes (cont.) | | | |
| Harry Laffoon, Vice Chairman | 11/21/84 | Telephone | Established meeting date. |
| | 11/26/84 | Meeting | Meeting with Resources Development Committee, of which Harry Laffoon is Chairman, to review and comment on project. This meeting was also attended by Charles Lamb, the museum director, and Curtiss Martin and Weldon Johnson of the museum staff. |
| Charles Lamb, Museum Director | 11/08/84 | Letter | Project description and request for input. |
| | 11/21/84 | Telephone | Discussion of project and meeting schedule. |
| | 11/26/84 | Meeting | Meeting with Resources Development Committee. |
| | 11/27/84 | Telephone | Discussion of comments on project. |
| | 12/03/84 | Telephone | Arrangements for Native American consultant on archaeological survey. |
| Cultural Systems Research, Inc. | | | |
| Lowell J. Bean, President | 11/21/84 | Telephone | Discussion of ethnographic data base and possible referrals for study area. |
| Sylvia B. Vane, Vice President | 11/21/84 | Telephone | Discussion of ethnographic data base and posssible referrals for study area. |

Agency Contacts (continued)

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Fort Mojave Tribal Council<br>Minerva Jenkins, Chairperson | 11/08/84 | Letter | Description of project and request for input. |
| | 11/19/84 | Telephone (office) | Referral to Claude Lewis. |
| Claude Lewis, Vice Chairman | 11/19/84 | Telephone | Discussed project and set meeting date. |
| | 11/26/84 | Meeting | Reviewed and commented on project. Lewis is also the Tribal Historian. |
| Kawaiisu Tribe<br>Andy Green | 12/03/84 | Letter | Description of project and request for input. |
| Las Vegas Indian Center<br>Richard Arnold, Director | 11/08/84 | Letter | Description of project and request for input. |
| | 11/19/84 | Telephone | Discussion of project and meeting date. |
| | 11/28/84 | Meeting | Reviewed project and offered comments. |
| Las Vegas Paiute Tribal Council<br>Billy Frye, Chairman | 11/08/84 | Letter | Description of project and request for input. |
| | 11/19/84 | Telephone (office) | Meeting time established. |
| | 11/28/84 | Meeting | Presentation to tribal council for review and comment on project. |
| Gloria Yazzi, Tribal Member | 12/06/84 | Telephone | Discussed possibility of work as Native American consultant on archaeology survey. |

Agency Contacts (continued)

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Moapa Paiute Tribal Council<br>Clifton Surrett, Chairman | 11/08/84 | Letter | Description of project and request for input. |
| | 11/19/84 | Telephone | Referred concerns to Las Vegas Paiute. |
| San Bernardino County Museum<br>Gerald Smith, Director | 11/21/84 | Telephone | Discussion of possible Serrano contacts for the ethnology study. Smith was referred by Henry Duro, the Chairman of the San Manuel (Serrano) Reservation. |
| San Manuel Band of Mission Indians<br>Henry Duro, Chairman | 11/14/84 | Letter | Description of project and request for input. |
| | 11/20/84 | Telephone | Discussion of project and need for meeting. Referred Gerald Smith. |
| | 12/05/84 | Telephone (message) | Request for referral for Native American consultant on archaeological survey. |
| Martha Chacon, Member | 12/03/84 | Letter | Description of project and request for input. |
| Bureau of Land Management<br>Sacramento State Office<br>Bob Laidlaw, State Anthropologist | 11/04/84 | Meeting | Discuss and review data from the California Desert Plan Studies |
| | 11/08/84 | Letter | cc: Native American contact letter. |
| | 11/21/84 | Telephone | Discussed workscope and previous studies. Interview and data referrals along with meeting time to review existing information in Riverside District Office. |

Agency Contacts (continued)

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Bureau of Land Management<br>California Desert District<br>Garth Portillo, Archaeologist | 11/08/84 | Letter | cc: Native American contact letter. |
| | 11/21/84 | Telephone | Response to his comments on workscope and concurrence on one mile study area. |
| | 12/04/84 | Meeting | Discuss and review data from the California Desert Plan Studies. |
| Bureau of Land Management<br>Barstow Resource Area<br>Jim Chase, Archaeologist | 08/13/84 | Letter | cc: Native American contact letter. |
| | 08/21/84 | Telephone | Discussed ethnology workscope although material not yet in hand. |
| Bureau of Land Management<br>Reno State Office<br>Richard Hanes, Archaeologist | 11/21/84 | Telephone | Discussed project and previous work on IPP. Referred Las Vegas area archaeologists (Stateline). |
| Bureau of Indian Affairs<br>Western Nevada Agency<br>Mike Eckstein | 11/21/84 | Telephone | Discussed project and possible Native American contacts. |
| Office of Historic Preservation<br>State of California<br>Dwight Dutschke, Native American Coordinator | 11/08/84 | Letter | cc: Native American contact letter. |
| | 11/21/84 | Telephone | Reviewed scope of work and contacts. No additional comments or referrals. |

Agency Contacts (continued)

| Agency | Date | Type of Contact | Summary |
|---|---|---|---|
| Division of Historic Preservation and Archaeology, Nevada<br>Alice Becker, Archaeologist | 11/08/84 | Letter | cc: Native American contact letter. |
| | 11/21/84 | Telephone | Referrals to individuals who may have information regarding the ethnographic resources in the study area. |
| Applied Conservation Technology, Inc.<br>Ed Weil, Cultural Resources Manager | 11/13/84 | Telephone | Request for ethnographic site data for the IPP Project. Request was granted. Reports had been previously supplied. |
| Southern California Edison<br>David White, Cultural Resource Specialist | 11/13/84 | Telephone | Request for ethnographic site data relevant to Allen-Warner and Ivanpah studies. |
| | 11/14/84 | Telephone | Further discussion of ethnographic data base for Allen-Warner, Ivanpah and IPP. |
| | 12/13/84 | Telephone | Clarification of site data included as appendices in several reports. |
| | 12/18/84 | Telephone | Discussed confidential nature of Allen-Warner appendices and request to reprint a map from the Ivanpah report. |

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## TABLE II-I
## INVENTORY OF ETHNOLOGY RESOURCES

| Link No. | Length (Miles) | Description |
|---|---|---|
| 0 | 13.5 | Site #34. El Dorado Mountains. Contemporary Native Americans see these mountains as important and feel there are probably unrecorded archaeological sites there. The foothills extend into the study area. Bean and Vane (NA, L); Dobyns (1974); Euler (1966); Kroeber (1976); Manner (1974); Stoffle et al. (1983); Woods (1983). |
| 1 | 16.6 | Site #35. Eldorado Valley. The Las Vegas Paiute, who occupied this valley prior to contact, have expressed concerns over the disturbance of burials there because of previous transmission line construction. The Mojave also expressed concerns for the area. Bean and Vane (NA, A, L); Stoffle et al. (1983); Woods (1983).<br>Site #70. McCullough Mountains. Contemporary Native Americans have expressed concerns for this former habitation and resource exploitation area and suspect that there are unrecorded archaeological sites there. Link 1 passes through the McCullough range. The Southern Paiute expressed concerns for the foundation of a Paiute stone house, a cairn, native plants and portions of an aboriginal trail in this area. Bean and Vane (A, PC); Stoffle et al. (1983); Woods (1983). |
| 4 | 1.9 | Site #53. Ivanpah Lake and Valley. Contemporary Native Americans have expressed concerns for these general areas and associated archaeological sites such as SBr-786. Link 4 passes through the Ivanpah Valley. Bean and Vane (NA, A, L); Kroeber (1976); Manners (1975); Powers (1877); Stoffle et al. (1983); van Valkenburgh (1976). |
| 5a | 0.2 | Site #53. Ivanpah Lake and Valley. Contemporary Native Americans have expressed concerns for these general areas and associated archaeological sites such as SBr-786. Link 5a passes through the Ivanpah Valley. Bean and Vane (NA, A, L); Kroeber (1976); Manners (1975); Powers (1877); Stoffle et al. (1983); van Valkenburgh (1976). |

Table 11-1 (continued)
Inventory of Ethnology Resources

| Link No. | Length (Miles) | Description |
|---|---|---|
| 5b | 4.8 | Site #53. Ivanpah Lake and Valley. Contemporary Native Americans have expressed concerns for these general areas and associated archaeological sites such as SBr-786. Link 5b passes through the Ivanpah Valley. Bean and Vane (NA, A, L); Kroeber (1976); Manners (1975); Powers (1877); Stoffle et al. (1983); van Valkenburgh (1976). |
| 5c | 17.3 | Site #26. Clark Mountain. A spring within this BLM ACEC contains rockshelters (SBr-2704 & SBr-821) and the mountains are of concern to contemporary Native Americans. The foothills extend into the study area. Bean and Vane (NA, A); BLM/CDCA; King and Casebier (1981); Knack (1980); van Valkenburgh (1976). |
| | | Site #53. Ivanpah Lake and Valley. Contemporary Native Americans have expressed concerns for these general areas and associated archaeological sites such as SBr-786. Link 5c passes through the Ivanpah Valley. Bean and Vane (NA, A, L); Kroeber (1976); Manners (1975); Powers (1877); Stoffle et al. (1983); van Valkenburgh (1976). |
| | | Site #78. Mountain Pass. There are important prehistoric, ethnohistoric and historic resources in the general area of the pass and Paiutes noted milling features and roasting pits in the Microwave Tower vicinity. Bean and Vane (NA, A). |
| 6 | 83.3 | Site #53. Ivanpah Lake and Valley. Contemporary Native Americans have expressed concerns for these general areas and associated archaeological sites such as SBr-786. Link 6 passes through and skirts the northern side of the Ivanpah Valley. Bean and Vane (NA, A, L); Kroeber (1976); Manners (1975); Powers (1877); Stoffle et al. (1983); van Valkenburgh (1976). |
| | | Site #93. Red Pass Lake area. Several archaeological sites are located within this general area including SBr-847 and SBr-4924. Some of these contain rockshelters and rock alignments. Bean and Vane (A). |

Table 11-1 (continued)
Inventory of Ethnology Resources

| Link No. | Length (Miles) | Description |
|---|---|---|
| 6 (cont.) | | Site #102. Silver Lake. Numerous artifacts are located along the shoreline of this Pleistocene lake bed. The area is significant to persons interested in California prehistory. The northern shoreline is adjacent to Link 6. Archaeological sites include SBr-140; 262; 264; 265; 3186. Bean and Vane (A, L). |
| | | Site #105. Soda Mountains. Contemporary Native Americans have expressed some concern for this range. Archaeological sites are located along the western perimeter. Link 6 crosses the northwestern perimeter of the Soda Mountains. Bean and Vane (NA, A, L). |
| | | Site #140. Spring Mountains. The area around these mountains was noted as "story country" to the Chemehuevi and native houses were noted throughout the range in 1875. King and Casebier (1981). |
| 7 | 13.5 | Site #26. Clark Mountain. A spring within this BLM ACEC contains rockshelters (SBr-2704 & SBr-821) and the mountains are of concern to contemporary Native Americans. The foothills extend into the study area. Bean and Vane (NA, A); BLM/CDCA; King and Casebier (1981); Knack (1980); van Valkenburgh (1976). |
| | | Site #78. Mountain Pass. There are important prehistoric, ethnohistoric and historic resources in the general area of the pass and Paiutes noted milling features and roasting pits in the Microwave Tower vicinity. Bean and Vane (NA, A). |
| | | Site #99. Shadow Valley/Valley Wells. Archaeological sites of concern to Native Americans are located within this area. They include petroglyphs and a walk-in well with milling features. Bean and Vane (NA, A). |
| | | Site #133. Mescal Range. A rock arrangement here may indicate a burial. Recorded as SBr-2240. Bean and Vane (A); BLM/CDCA. |

Table II-I (continued)
Inventory of Ethnology Resources

| Link No. | Length (Miles) | Description |
|---|---|---|
| 8 | 12.9 | Site #78. Mountain Pass. There are important prehistoric, ethnohistoric and historic resources in the general area of the pass and Paiutes noted milling features and roasting pits in the Microwave Tower vicinity. Bean and Vane (NA, A). |
| | | Site #99. Shadow Valley/Valley Wells. Archaeological sites of concern to Native Americans are located within this area. They include petroglyphs and a walk-in well with milling features. Bean and Vane (NA, A). |
| | | Site #133. Mescal Range. A rock arrangement here may indicate a burial. Recorded as SBr-2240. Bean and Vane (A); BLM/CDCA. |
| 9 | 25.0 | Site #46. Halloran Spring. Many archaeological sites are located within a two mile radius of these springs. They include rockshelters and petroglyphs which are of considerable concern to Native Americans. Bean and Vane (NA, A); Brooks, Wilson and Brooks (1981). |
| | | Site #47. Halloran Wash. The Wash contains numerous prehistoric resources. BLM/CDCA. |
| | | Site #104. Soda Lake and the Sink of the Mojave. This area contains archaeological sites and a water source on the Mojave Trail. Bean and Vane (NA, A, L); Brooks, Wilson and Brooks (1981). |
| 11 | 20.5 | Site #104. Soda Lake and the Sink of the Mojave. This area contains archaeological sites and a water source on the Mojave Trail. Bean and Vane (NA, A, L); Brooks, Wilson and Brooks (1981). |
| | | Site #141. Habitation (Archival). Indian lodges and horses were reported in this area by Jedediah Smith in 1826. Euler (1966). |

Table 11-1 (continued)
Inventory of Ethnology Resources

| Link No. | Length (Miles) | Description |
|---|---|---|
| 12 | 4.9 | Site #104. Soda Lake and the Sink of the Mojave. This area contains archaeological sites and a water source on the Mojave Trail. Bean and Vane (NA, A, L); Brooks, Wilson and Brooks (1981). |
| 14 | 4.9 | Site #31. Cronese Valley, Basin and Mountain. Native Americans have concerns for this area and the associated rich archaeological remains. Hunting camps and salt sources characterize the ethnographic component of the resource base. Bean and Vane (A, L, PC); BLM/CDCA. |
| 16 | 8.6 | Site #31. Cronese Valley, Basin and Mountain. Native Americans have concerns for this area and the associated rich archaeological remains. Hunting camps and salt sources characterize the ethnographic component of the resource base. Bean and Vane (A, L, PC); BLM/CDCA. |
| 17 | 5.3 | Site #1. Afton Canyon. This area contains numerous archaeological sites and portions of aboriginal trails. The Mojave Trail, regarded by contemporary Mojave Indians as sacred, passes through the canyon. Bean and Vane (NA, A, L); Williamson (1853). |
| 21 | 14.0 | Site #132. Toomey. Two particularly significant archaeological sites are located in this area, SBr-2110 and SBr-2129. Bean and Vane (A). |
| 22 | 21.2 | Site #4. Village (Anyayaba). Site consists of scrapers, choppers, points and firestones. Coterminous with several archaeological sites. Bean and Vane (L).<br>Site #20. Camp Cady area. Several recorded flake scatters are located in the area near the place where the Mojave River goes underground. Bean and Vane (A, L); Beattie and Beattie (1951); Fremont (1845); Garces, cited in Kroeber (1976). |

Table 11-1 (continued)
Inventory of Ethnology Resources

| Link No. | Length (Miles) | Description |
|---|---|---|
| 22 (cont.) | | Site #128. Field. Cleared triangular figures and fire rings constitute the sites at this location. Bean and Vane (A). |
| | | Site #132. Toomey. Two particularly significant archaeological sites are situated in this area, SBr-2110 and SBr-2129. Bean and Vane (A). |
| 24a | 27.3 | Site #21. Village (Caucameat). Located on about 15 acres, the site, called San Hilario by the Spaniards, contains numerous artifacts. Bean and Vane (A, L); Beattie (1955). |
| | | Site #32. Daggett Ridge. A number of archaeological sites have been recorded along this ridge including SBr-3169; 4929; 4432; 4934. Bean and Vane (A). |
| | | Site #62. Village (Susugina). Area also contains numerous archaeological sites including SBr-2283. Site is not mapped due to insufficient locational information. Bean and Vane (NA, A); Beattie (1955). |
| 25 | 11.7 | Site #32. Daggett Ridge. A number of archaeological sites have been recorded along this ridge including SBr-3169; 4429; 4432; 4934. Bean and Vane (A). |
| | 15.5 | Site #107. Stoddard and Sidewinder Mountains. This area contains Serrano/Vanyume occupation sites and a trail. The area is referred to in Chemehuevi and Paiute mythology. Link 25 approaches the northwestern foothills of the Stoddard Mountains. Bean and Vane (L); Laidlaw (1979). |
| 32 | 16.4 | Site #86. Oro Grande Site. Coterminous with SBr-72. This potential national register site was identified by contemporary Native Americans as a place of concern and possibly a village site. Bean and Vane (NA, A, L). |

Table 11-1 (continued)
Inventory of Ethnology Resources

| Link No. | Length (Miles) | Description |
|---|---|---|
| 33 | 15.5 | Site #69. Village (Mavīatem). The clan of the same name lived in this village in the Victorville area. The site is not mapped due to insufficient locational information. Bean and Vane (L); Garces, cited in Kroeber (1976); Gifford (1918); Harrington (n.d.); Strong (1929). |
|  | 15.5 | Site #107. Stoddard and Sidewinder Mountains. This area contains Serrano/Vanyume occupation sites and a trail. The area is referred to in Chemehuevi and Paiute mythology. Link 33 approaches the northwestern foothills of the Stoddard Mountains. Bean and Vane (L); Laidlaw (1979). |
| 39 | 6.2 | Site #57. Kramer Hills. Cultural resources were identified in these hills. BLM/CDCA. |
| 45 | 5.7 | Site #53. Ivanpah Lake and Valley. Contemporary Native Americans have expressed concerns for these general areas and associated archaeological sites such as SBr-786. Link 45 passes through the Ivanpah Valley. Bean and Vane (NA, A, L); Kroeber (1976); Manners (1975); Powers (1877); Stoffle et al. (1983); van Valkenburgh (1976). |
| Link not Identified |  | Site #13. Burial sites are reported in the Barstow area. Bean and Vane (NA, A, L); Brooks, Wilson and Brooks (1981). |
|  |  | Site #64. Lower narrows of the Mojave River. Contemporary Native Americans expressed concerns for this area and associated archaeological sites including SBr-66; 67; 68; 182. This general area contains the potential national register properties at Victorville Narrows. The resource base may extend into the study area along Links 32 and 34. Not mapped. Bean and Vane (NA, A). |

Table II-I (continued)
Inventory of Ethnology Resources

| Link No. | Length (Miles) | Description |
|---|---|---|
| No link (cont) | | Site #75. Mojave River. This river along with associated water, plant and animal resources has been long important to Native Americans and remains so. The Mojave Trail followed portions of the river and there are numerous archaeological sites along its course. Bean and Vane (NA, A, L); Knack (1980). |
| | | Site #77. Mojave Trail. The main body of this trail followed the Mojave River although there were also important tributaries. Native Americans have suggested that this trail be more extensively mapped and studied. Bean and Vane (NA, A, L); Brooks, Wilson and Brooks (1981). |
| | | Site #113. Village (Topiabit). Site identified in historical documents. Not mapped due to insufficient locational information. Bean and Vane (L); Beattie (1955). |
| | | Site #116. Victorville area. Native Americans have expressed concerns for the many archaeological sites in the Victorville area including SBr-58; 65; 72; 182. Bean and Vane (NA, A, L); Brooks, Wilson and Brooks (1981). |
| | | Site #142. Trail. A Chemehuevi trail was noted between Victorville and 17 Mule Point. In the vicinity of the study area, it touched at Victorville, Stoddard Wells, the fish ponds just below Daggett, Camp Cady, Sinks of the Mohave River, and Soda Lake. Not mapped due to insufficient locational information. Brooks, Wilson and Brooks (1981). |
| | | Site #143. Trail. A trail from the Moqui (Hopi Pueblos) passed by an arroyo about 9 miles upstream from the Camp Cady area on the Mojave River. Not mapped due to insufficient locational information. Casebier (1975). |

Table 11-1 (continued)
Inventory of Ethnology Resources

| Link No. | Length (Miles) | Description |
|---|---|---|
| No link (cont) | | Site #144. Trail. Chemehuevi tales note a trail used by "Southern Fox," as he retreated from the Dead Mountains through the Ivanpah Range to Death Valley. The trail passes through the study area although it is not mapped due to insufficient locational information. Laird (1976); Knack (1980). |

## TABLE 11-2
## ETHNOLOGY SENSITIVITY

| Link No. | Site No. | Site Description | Site ID | Sensitivity |
|---|---|---|---|---|
| 0 | 34 | El Dorado Mountains | Native American<br>Literature Search | M-H |
| 1 | 35 | El Dorado Valley | Native American<br>Records Search<br>Literature Search | M-H |
| | 70 | McCullough Mountains | Native American<br>Records Search<br>Literature Search | M-H |
| 4 | 53 | Ivanpah Lake & Valley | Native American<br>Records Search<br>Literature Search | M |
| 5 | 26 | Clark Mountain | Native American<br>Records Search<br>Literature Search<br>BLM/CDCA | M |
| | 53 | Ivanpah Lake & Valley | Native American<br>Records Search<br>Literature Search | M |
| | 78 | Mountain Pass | Native American<br>Records Search | M-H |
| 6 | 53 | Ivanpah Lake & Valley | Native American<br>Records Search<br>Literature Search | M |
| | 93 | Red Pass Lake area | Records Search | M-H |
| | 102 | Silver Lake | Records Search<br>Literature Search | M-L |
| | 105 | Soda Mountains | Native American<br>Records Search<br>Literature Search | M-L |
| | 140 | Spring Mountains | Literature Search | M-H |

Table 11-2 (continued)
Ethnology Sensitivity

| Link No. | Site No. | Site Description | Site ID | Sensitivity |
|---|---|---|---|---|
| 7 | 26 | Clark Mountain | Native American<br>Records Search<br>Literature Search<br>BLM/CDCA | M |
| | 78 | Mountain Pass | Native American<br>Records Search | M-H |
| | 99 | Shadow Valley/Wells | Native American<br>Records Search | M-H |
| | 133 | Mescal Range (Site) | Records Search<br>BLM/CDCA | M-L |
| 8 | 78 | Mountain Pass | Native American<br>Records Search | M-H |
| | 99 | Shadow Valley/Wells | Native American<br>Records Search | M-H |
| | 133 | Mescal Range (Site) | Records Search<br>BLM/CDCA | M-L |
| 9 | 46 | Halloran Spring | Native American<br>Records Search | H |
| | 47 | Halloran Wash | BLM/CDCA | M |
| | 104 | Soda Lake/Sink of Mojave | Native American<br>Records Search<br>Literature Search | M-H |
| 11 | 104 | Soda Lake/Sink of Mojave | Native American<br>Records Search<br>Literature Search | M-H |
| | 105 | Soda Mountains | Native American<br>Records Search<br>Literature Search | M-L |
| | 141 | Habitation | Literature Search | M |
| 12 | 104 | Soda Lake/Sink of Mojave | Native American<br>Records Search<br>Literature Search | M-H |

Table 11-2 (continued)
Ethnology Sensitivity

| Link No. | Site No. | Site Description | Site ID | Sensitivity |
|---|---|---|---|---|
| 14 | 31 | Cronese Valley Basin & Mountain | Records Search<br>Literature Search<br>Personal Communication BLM/CDCA | M-H |
| 16 | 31 | Cronese Valley, Basin & Mountain | Records Search<br>Literature Search<br>Personal Communication BLM/CDCA | M-H |
| 17 | 1 | Afton Canyon | Native American<br>Records Search<br>Literature Search | M-H |
| 21 | 132 | Toomey (Sites) | Records Search | H |
| 22 | 4 | Village | Literature Search | H |
|  | 20 | Camp Cady area | Records Search<br>Literature Search | M-H |
|  | 128 | Field | Records Search<br>Literature Search | M-L |
|  | 132 | Toomey (Sites) | Records Search | H |
| 24a | 21 | Village | Records Search<br>Literature Search | H |
|  | 32 | Daggett Ridge (Sites) | Records Search | M-L |
| 25 | 32 | Daggett Ridge (Sites) | Records Search | M-L |
|  | 107 | Stoddard & Sidewinder Mountains | Literature Search | M-H |
| 32 | 86 | Oro Grande (Site) | Native American<br>Records Search<br>Literature Search | H |
| 33 | 69 | Village | Literature Search | H |
|  | 107 | Stoddard & Sidewinder Mountains | Literature Search | M-H |

Table 11-2 (continued)
Ethnology Sensitivity

| Link No. | Site No. | Site Description | Site ID | Sensitivity |
|---|---|---|---|---|
| 39 | 57 | Kramer Hills | BLM/CDCA | M |
| No Link | 13 | Barstow area | Native American Records Search<br>Literature Search | H |
|  | 64 | Narrows of Mojave River | Native American Records Search | H |
|  | 75 | Mojave River | Native American Records Search<br>Literature Search | H |
|  | 77 | Mojave Trail | Native American Records Search<br>Literature Search | H |
|  | 116 | Victorville area (Sites) | Native American Records Search<br>Literature Search | H |
|  | 142 | Trail (Chemehuevi) | Literature Search | M-L |
|  | 143 | Trail (from Moqui) | Literature Search | M-L |
|  | 144 | Trail (Southern Fox) | Literature Search | M-L |

## TABLE 11-3
## IMPACT ASSESSMENT/MITIGATION PLANNING CHART: ETHNOLOGY

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 13.5 | 2.0 - 13.0 | I | L (1.0) | - | Link passes through the El Dorado Valley (#35) which is an area of concern to Native Americans. | - | - | - | - |
| 1 | 16.6 | 0.5 - 6.0 | I | L (1.0) | - | Link passes through El Dorado Valley (#35) which is an area of concern to Native Americans. | - | - | - | - |
|  |  | 6.0 - 10.5 | I | L (1.0) | - | Link passes through this section of the McCullough Range (#70) where Native Americans have expressed a variety of concerns for cultural resources. | - | - | - | - |
| 4 | 1.9 | 0.0 - 1.9 | I | L (1.0) | - | Link passes through the Ivanpah Valley (#53). Native Americans have expressed general concerns for this area and associated archaeological sites. | - | - | - | - |

Table 11-3 (continued)
Impact Assessment/Mitigation Planning Chart: Ethnology

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 5a | 0.2 | 0.0 - 0.2 | I | NI(0.5) | - | Link passes through the Ivanpah Valley (#53). Native Americans have expressed general concerns for this area and associated archaeological sites. | - | - | - | - |
| 5b | 4.8 | 0.0 - 4.8 | I | NI(0.5) | - | Link passes through the Ivanpah Valley (#53). Native Americans have expressed general concerns for this area and associated archaeological sites. | - | - | - | - |
| 5c | 12.3 | 0.0 - 12.0 | I | NI (0.5) | - | Link passes through the Ivanpah Valley (#53). Native Americans have expressed general concerns for this area and associated archaeological sites. | - | - | - | - |
|  |  | 12.0-12.3 | I | NI (0.5) | - | Roasting pits and other sites of concern to Native Americans have been identified on the slopes of Clark Mountain (#26). The Link approaches the southeastern slopes. | - | - | - | - |

Table 11-3 (continued)
Impact Assessment/Mitigation Planning Chart: Ethnology

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 5c (cont.) | | 12.0-12.3 | I | L (1.0) | - | Link approaches the Mountain Pass area (#78). Native Americans have expressed concerns for a variety of cultural resources in this area. | - | - | - | - |
| 6 | 83.3 | 0.0 - 0.0<br>2.0 - 9.0 | I<br>I | NI (0.5)<br>NI (0.5) | - | Link passes through two sections of the Ivanpah Valley (#53). Native American have expressed general concerns for this area and associated archaeological sites. | - | - | - | - |
| | | 47.5-48.5 | * | * | - | *Potential impacts to cultural resources identified in this area (#102) will be assigned by the archaeological resources study team. | - | - | - | - |

Table 11-3 (continued)
Impact Assessment/Mitigation Planning Chart: Ethnology

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 13.5 | 0.0 - 1.5 | I | M (7.0) | - | Roasting Pits and other sites of concern to Native Americans have been identified on the slopes of Clark Mountain (#26). The link crosses the southern slopes. | - | - | - | - |
| | | 1.0 - 1.5 | * | * | - | *Potential impacts to cultural resources in this area (#133) will be assigned by the archaeological resources study team. | - | - | - | - |
| | | 0.0 - 2.0 | I | M (7.0) | - | Link passes through Mountain Pass (#78). Native Americans have expressed concerns for a variety of cultural resources in this area. | - | - | - | - |
| | | 6.0 - 6.5 | I | M (7.0) | - | Link passes near Valley Wells (#99). Native Americans have expressed concerns for sites situated within a two mile radius of this area. | - | - | - | - |

Table 11-3 (continued)
Impact Assessment/Mitigation Planning Chart: Ethnology

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 12.9 | 0.0 - 2.5 | I | L (1.0) | - | Link passes through Mountain Pass (#78). Native Americans have expressed concerns for a variety of cultural resources in this area. | - | - | - | - |
| | | 1.0 - 1.5 | * | * | - | *Potential impacts to cultural resources in this area (#133) will be assigned by the archaeological resources study team. | - | - | - | - |
| | | 8.2 - 8.7 | I | L (1.0) | - | Link passes near Valley Wells (#99). Native Americans have expressed concerns for sites situated within a two mile radius of this area. | - | - | - | - |
| 9 | 25.0 | 7.2 - 7.7 | I | H (10.0) | - | Link passes near Halloran Spring (#46). Native Americans have expressed concerns for sites within a two mile radius of this area. | - | - | - | - |

Table 11-3 (continued)
Impact Assessment/Mitigation Planning Chart: Ethnology

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 9 (cont.) | | 14.5-15.5 | * | * | - | *Potential impacts to cultural resources in this area (#47) will be assigned by the archaeological resources study team. | - | - | - | - |
| | | 20.5-21.5 | * | * | - | Potential impacts to cultural sites in this area (#104) will be assigned by the archaeological resources study team. | - | - | - | - |
| 11 | 20.5 | 1.5 - 5.0 | * | * | - | *Potential impacts to cultural resources in this area (#104) will be assigned by the archaeological resources study team. | - | - | - | - |
| 12 | 4.9 | 1.0 - 1.5 | * | * | - | *Potential impacts to cultural resources in this area will be assigned by the archaeological resources study team. | - | - | - | - |

Table 11-3 (continued)
Impact Assessment/Mitigation Planning Chart: Ethnology

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Significant? | Impact Description | Recommended Mitigation | Residual Long-Term Impact Level | Significant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 4.9 | 0.0 - 1.0 | * | * | - | *Potential impacts to cultural resources in this area (#31) will be assigned by the archaeological resources study team. | - | - | - | - |
| 16 | 8.6 | 0.0 - 7.0 | * | * | - | *Potential impacts to cultural resources in this area (#31) will be assigned by the archaeological resources study team. | - | - | - | - |
| 21 | 14.0 | 11.0-11.5 | * | * | - | *Potential impacts to cultural resources in this area (#132) will be assigned by the archaeological resources study team. | - | - | - | - |
| 22 | 21.1 | 19.5-20.0 | * | * | - | *Potential impacts to cultural resources in this area (#132) will be assigned by the archaeological resources study team. | - | - | - | - |

Table 11-3 (continued)
Impact Assessment/Mitigation Planning Chart: Ethnology

| Link Number | Length | Mileposts | Impact Type | Initial Long-Term Impact Level | Sig-nifi-cant? | Impact Description | Recom-mended Miti-gation | Residual Long-Term Impact Level | Sig-nifi-cant? | Significant Unavoidable Adverse Impact Description |
|---|---|---|---|---|---|---|---|---|---|---|
| 24a | 27.3 | 17.0-17.5 | * | * | - | *Potential impacts to cultural resources in this area (#21) will be assigned by the archaeological resources study team. | - | - | - | - |
| 25 | 11.7 | 0.0 - 0.5 | * | * | - | *Potential impacts to cultural resources in this area (#32) will be assigned by the archaeological resources study team. | - | - | - | - |
| 45 | 5.7 | 0.0 - 5.7 | I | NI (0.5) | - | Link passes through the Ivanpah Valley (#53). Native Americans have expressed general concerns for this area and associated archaeological sites. | - | - | - | - |